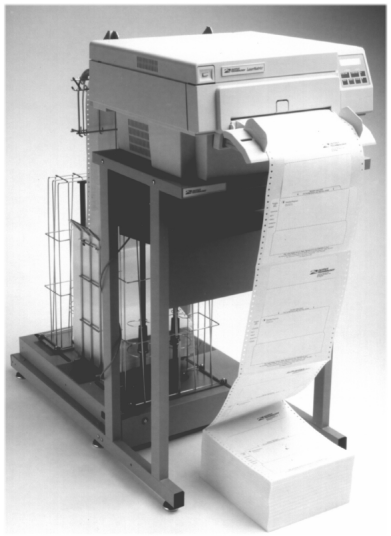
User's Manual

PrintCenter 24



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We suggest you use genuine Output Technology Corporation supplies and authorized service centers. Please contact us at —

Voice: 1-800-468-8788 — Fax: (509) 533-1280

For service, please have your printer model and serial numbers handy — these are located on the side of the printer.

WWW: http://www.output.com

Safety Regulations for the PrintCenter 24

The **PrintCenter 24** fulfils the safety regulations according to IEC and TÜV/GS for computer systems (EN 60950) and laser products (EN 60825-1).
UL 1950 3rd Edition / CAN/CSA C22.2 No 950-95; 21 CFR 1040.10 and 1040.11.

The mains cable must be connected to a ground protected wall-socket. The selected voltage of the printer needs to be in accordance with the local mains voltage.

The power plug must be easily accessible at any time so that it can be disconnected immediately in case of danger or for maintenance purposes.

Before installing the printer, check the surrounding conditions in which the printer is intended to be used (see next page, Operating Environment).

During thunderstorm you should never attempt to connect or disconnect any data transfer cable.

The power supply should only be opened and checked by authorized personnel. Repairs and maintenance beyond the descriptions of chapter 4 may only be attempted by authorized personnel as well. Repairs done inappropriately may cause damage to the device and severe danger for the user.

Caution: The use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

During the printing process ozone will be produced. Take care that the printer is standing in a room with good ventilation. The limit of ozone concentration should be **0,1 ppm** (**0,2 mg/m^3**). Note that the specific gravity of ozone is higher than air.

Electromagnetic Compatibility

We certify that the equipment at issue,

Type: **PrintCenter 24**

corresponds to the law regulations ruling electromagnetic compatibility of appliances (89/336/EWG) and, therefore, fulfils the requirements for conformity marking with the CE-sign.

Note: This equipment has been tested and found to comply with the limits for a **CLASS A** digital device pursuant to **Part 15** of the **FCC** Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

To guarantee that the device stays within the limits according to the approval regulations for conducted and radiated emission (EN 55022, Class B) and immunity according to EN 50081-1, Generic Standard. In any case, shielded interface cables are only to be used.

Changes and modifications not explicitly allowed by the equipment's manufacturer could void the user's authority to operate the equipment.

Operating Environment

Avoid installing the printer where it is exposed to moisture or heat (eg. direct sun light).

- Temperature: + 10°C to + 32.5°C (+50°F to +90.5°F)
- Humidity: 20% to 80%

Slots and openings in the printer's housing are provided for ventilation. Always ensure that these openings are not obstructed.
Also ensure that the cables at the rear of the printer do not interfere with the output paper path.

CAUTION

Although the toner used in this printer is non-toxic, its super-fine texture and susceptibility to heat can cause problems if spilled.

NEVER reship or move the printer with the drum cartridge, developer unit, or waste toner bottle in the printer. **ALWAYS** remove these customer replaceable items.

ALSO, NEVER ship an open, used, or partially used drum cartridge, developer unit, or waste toner bottle.

The manufacturer is not liable for damage to the printer or other items when the printer is shipped or moved with the drum cartridge, developer unit, and/or waste toner bottle in place. Also, various governmental regulations may prohibit shipping of these items.

AVERTISSEMENT

Bien que l'encre utilisée dans cette imprimante ne soit pas toxique, elle est sensible à la chaleur et d'une texture extrèment fine et peut créer des problèmes si renversée.

N'expédiez ni ne déplacez **JAMAIS** l'imprimante avec la cartouche d'encre, l'unité de développement et la bouteille d'écoulement d'encre usagée installées. Retirez **TOUJOURS** ces articles au préalable.

DE SURCROIT, n'expédiez **JAMAIS** une cartouche d'encre ou une bouteille d'écoulement d'encre usagée ouvertes, entamées ou usagées. Expédiez toujours les unités de développement usagées avec la cartouche d'encre installée ; l'unité de développement contenant la cartouche d'encre doit être emballée dans un conteneur solide, résistant et parfaitement hermétique et étanche marqué "MANIEMENT SPECIAL".

Le fabricant n'est pas responsable des dégâts causés à l'imprimante ou à d'autres articles par suite de l'expédition ou du déplacement de l'imprimante avec la cartouche d'encre, l'unité de développement et/ou la bouteille d'écoulement d'encre installées. Il se peut de surcroit que certains règlements gouvernementaux interdisent l'expédition des cartouches d'encre et des bouteilles d'écoulement d'encre.

ACHTUNG

Obwohl der in diesem Drucker benutzte Toner nicht giftig ist, kann er, falls verschüttet, Probleme verursachen, weil er superfein und hitzeempfindlich ist.

Der Drucker darf **NIEMALS** wieder versandt oder bewegt werden, solange sich Tonerkartusche, Entwicklereinheit und Resttonerbehälter noch darin befinden. Diese vom Kunden auswechselbaren Artikel müssen **IMMER** erst entfernt werden.

Offene, gebrauchte oder teilweise aufgebrauchte Tonerkartuschen oder Resttonerbehälter dürfen **AUCH NIEMALS** versandt werden. Falls eine gebrauchte Entwicklereinheit versandt werden muß, darf sie nur zusammen mit der daran befestigten Tonerkartusche verschickt werden; Entwicklereinheit und Tonerkartusche müssen in einen sicheren, vollkommen luftdichten und lecksicheren, haltbaren Versandbehälter mit der Aufschrift "VORSICHT!" verpackt werden.

Der Hersteller haftet nicht für Schäden an Druckern oder anderen Gegenständen, wenn Drucker zusammen mit den darin befindlichen Tonerkartuschen, Entwicklereinheiten und/oder Resttonerbehältern versandt oder bewegt werden. Außerdem könnten gewisse staatliche Vorschriften den Versandt von Tonerkartuschen und Resttonerbehältern untersagen.

PRECAUCION

A pesar de que el pigmento de esta impresora no es tóxico, su textura extremadamente fina y su susceptibilidad al calor pueden presentar dificultades en caso de derramarlo.

NUNCA transporte ni mueva la impresora con el cartucho de pigmento, la unidad reveladora y el recipiente de desecho de pigmento instalados. **SIEMPRE** retire estos elementos reemplazables por el usuario.

Además, **NUNCA** transporte un cartucho de pigmento abierto o usado parcial o totalmente, ni tampoco un recipiente de desecho de pigmento. Si se debe transportar una unidad reveladora, debe hacérselo junto con el cartucho de pigmento; la unidad reveladora con el cartucho de pigmento deben empacarse en una caja segura, absolutamente hermética y a prueba de fugas, de gran resistencia, rotulada "MANEJESE CON ESPECIAL CUIDADO".

El fabricante no se hace responsable por los daños a la impresora o a otros elementos transportados o trasladados con el cartucho de pigmento, la unidad reveladora y/o el recipiente de desecho de pigmento instalados. Además, los reglamentos gubernamentales pueden prohibir el transporte de cartuchos de pigmento y de recipientes de desecho de pigmento.

ATTENZIONE

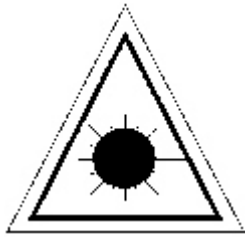
Sebbene il toner nella stampante sia atossico, la sua sensibilità al calore e la sua composizione estremamente fine possono causare problemi se rovesciato.

NON rispedire o spostare la stampante prima di aver rimosso la cartuccia del toner, lo sviluppatore e la bottiglia del toner usato. Rimuovere **SEMPRE** questi articoli prima della spedizione.

MAI spedire una cartuccia di toner o una bottiglia di toner usato aperta, o parzialmente usata. E' inoltre necessario spedire lo sviluppatore con la cartuccia del toner installata. Lo sviluppatore con la cartuccia del toner installata deve essere imballato in un contenitore rigido ed a tenuta ermetica etichettato "MANEGGIARE CON CURA".

Il fabbricante non è responsabile di eventuali danni alla stampante o ad altri articoli quando la stampante è spedita senza previa rimozione della cartuccia del toner, dello sviluppatore e/o della bottiglia del toner usato. E' possibile inoltre che certe norme governative vietino la spedizione di cartucce di toner e bottiglie del toner usato.

IMPORTANT SAFETY INSTRUCTION



DANGER: LASER LIGHT CAN DAMAGE EYES. DO NOT look directly at a laser lamp. DO NOT open the top cover while the printer is operating.

DANGER: LES RAYONS LASER SONT DANGEREUX POUR LES YEUX. NE PAS regarder directement une lampe laser. NE PAS ouvrir le couvercle d'une imprimante en cours d'opération.

VORSICHT: LASERLICHT KANN ZU AUGENSCHÄDEN FUHREN. NICHT direkt auf eine Laserlampe schauen. Bei Betrieb des Druckers NICHT den Gehäusedeckel öffnen.

PELIGRO: LAS RADIACIONES LASER PUEDEN DAÑAR LA VISTA. NUNCA dirija su vista a la lámpara lasérica. NO abra la tapa superior mientras la impresora funcione.

PERICOLO: LA LUCE LASER PUO' RECARE GRAVI DANNI AGLI OCCHI. NON guardare direttamente la lampada laser. NON aprire il coperchio della stampante, quando essa è in funzione.

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Preface

About this Manual
This manual covers the printer including the Control Unit. The Control Unit is an integral part of the printer which determines the functionality of the printer especially regarding the user and system interface. Due to the variety of Control Units different printer models are defined which, with respect to the user interface however, all behave the same.

The structure of this manual is such that the operator is led step-by-step through the various procedures. Starting with unpacking and installation of the consumables it moves on to setting-up configuration parameters and ends with the mounting of options.

The manual is divided into the following chapters:

1. Getting Started
This chapter covers the unpacking and setting-up of the printer and the installation of the consumables. By the end of this chapter the printer should be fully functional and tested in its primary form. It is not yet connected to the host computer system and no options are mounted.

2. Operating the Printer
This chapter discusses in great detail the operation of the operator panel, all menu functions, and the general operation of the menu. General status messages are also described.

3. Configuring the Printer
This chapter explains how to configure the printer so that it can communicate with the corresponding system environment. Then this chapter thoroughly describes the printer's operating controls. In the last part you will find explanations of individual menu items. At The end of this chapter you will find the Menu Tree.

4. Maintenance
This chapter explains how to replace the consumables.

5. Trouble Shooting and Diagnostics
Suggests how to identify and correct simple problems.

6. PrintCenter24 Floor Model Paper Stacker and Paper Motion Sensor

Description of assembling and operating the printer PC24 in combination with Output Technology Corporation's optional PC24 Stacker and Paper Motion Sensor.

7. Technical Data
Provides Technical information about the printer PC24 and the optional stacker system.

Appendix A
Programming information for page format control and printing of resident BARCODE features are explained in this appendix.

Conventions Used in this Guide
The following conventions are used:

Bold	Headlines and important information.
Note:	Contains special advice to facilitate handling.
Caution:	Contains important information to prevent damage of the equipment.
[ENTER]	Key functions are always depicted in brackets or indicated by the corresponding symbol.

1 Getting Started

1.1 Unpacking

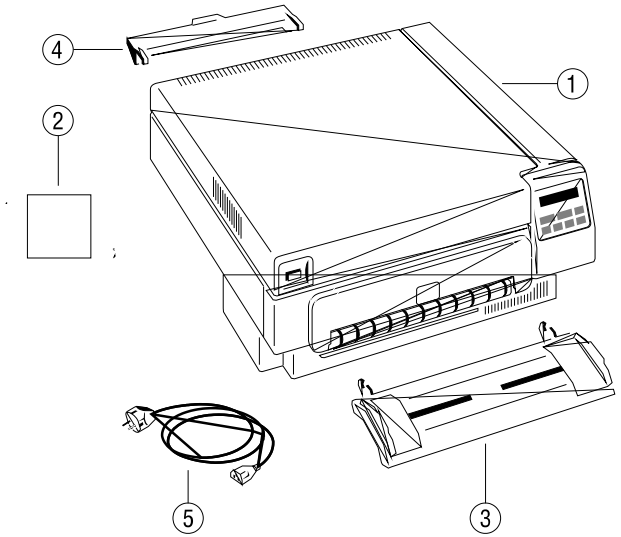
The PrintCenter 24 is delivered in two boxes, the larger one contains the printer itself, the smaller one contains the Starter Kit. Check each box for the contents on the list below. Contact your delivery agent immediately if any item is missing or damaged.

Printer Package

- Laser Printer (1)
- Control Unit (already mounted)
- User's Manual,Profiler and Drivers on CD (2)

Another small box contains:

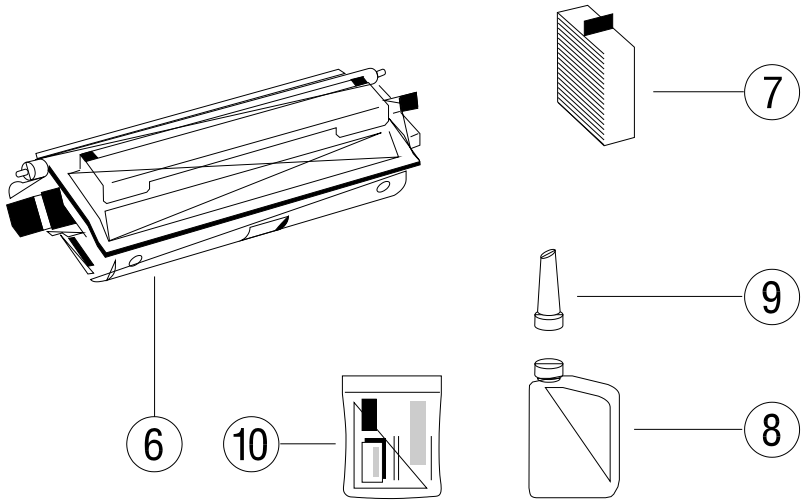
- One (plastic) front paper guide (3)
- One (plastic) exit paper guide (4)
- One power cord (5)



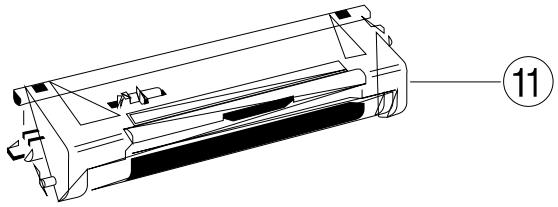
Note: The printer drivers & updates are available on Internet Address:
http://www.output.com

Contents of Starter Kit Box

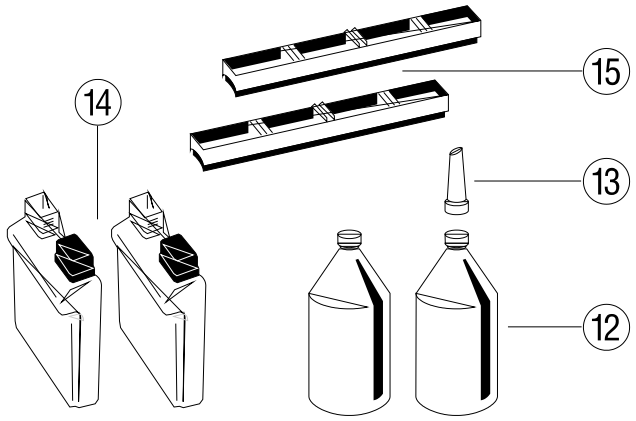
- One Developer Kit consisting of:
  - One Developer Unit (6)
  - One Ozone Filter (7)
  - One bottle with Starter Toner (8)
  - One spout (9)
  - One Cleaning Kit (10)



- One OPC Drum (11)



- One Toner Kit consisting of:
  - Two Toner bottles (12)
  - One spout (13)
  - Two Waste Toner Containers (14)
  - Two Cleaner Felts (15)



Note: Do not connect the printer to the mains until the mains voltage selection has been checked and the consumables have been installed (see the following pages).

Transportation Hints

Save all packing material and boxes for future transportation of the printer.

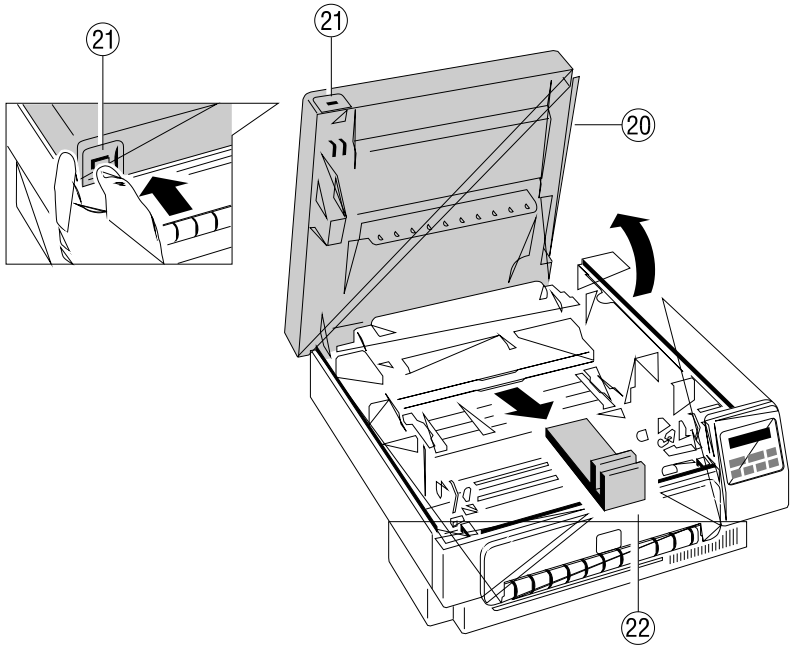
To ensure maximum protection when transporting the printer, please pay attention to the following:

1. Always remove the plastic paper guides and the power cord
2. Remove the Developer Unit
3. Empty the Toner box
4. Remove the OPC Drum
5. Remove the Waste Toner Container and lock it with the green cap
6. Put the printer into its original packing material and ship it its original box
7. Put the Developer Unit into its original packing box.
8. Wrap the OPC Drum with stuffed antistatic foil and pack it light proof into its original packing box.

1.2 Installing the Consumables

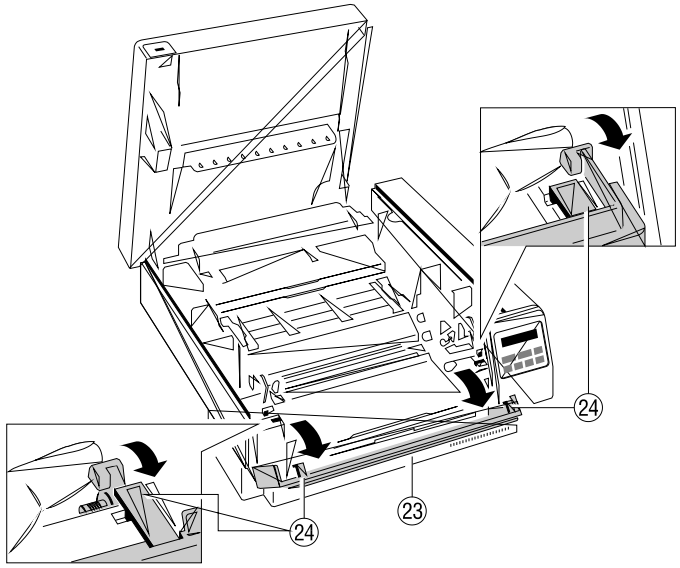
Open the cover (20) by firmly pressing the button (21) at the left top cover of the printer and swinging the cover up.

Remove the polyfoam transport lock (22) inside the printer, and located underneath the Fuser Unit.

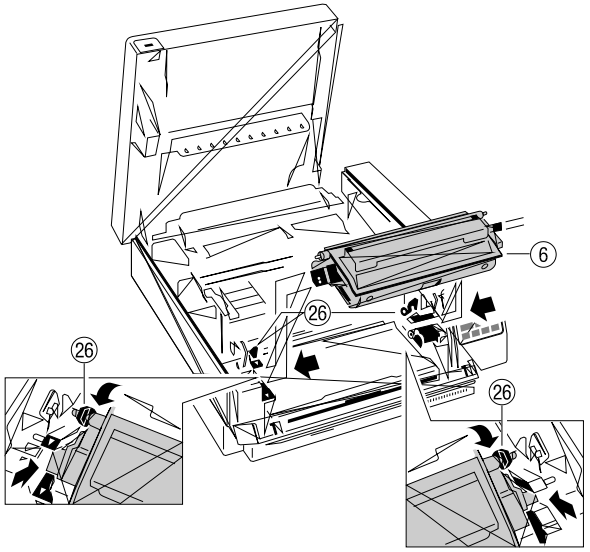


Installing the Developer Unit

Gently lift the plastic tabs (24) inside the printer, at the left and at the right side of the cover, and pull the front cover (23) in a forward direction. The front cover will only open to a 45 degree angle. Please **do not** force this cover beyond a 45 degree angle.



Now the rail guides inside the cabinet are free to accept the Developer Unit.
Remove the Developer Unit (6) from its foil package and turn it so that the sleeve roller (26) is toward the back of the printer.
Slide the Developer Unit fully into the printer along the plastic rails on the left and right. To lock push down the two green plastic tabs.

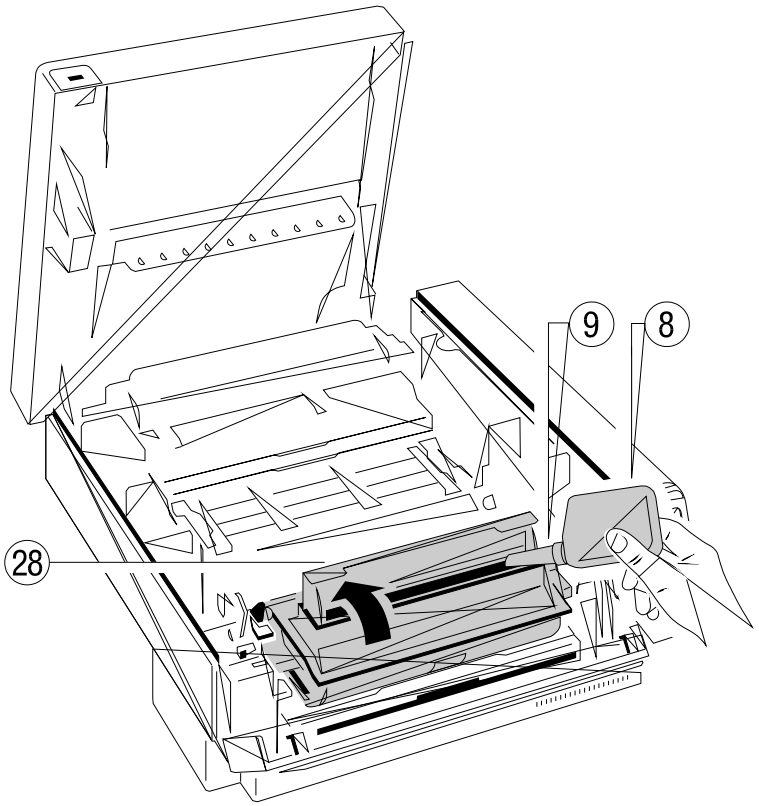


Filling in Starter Toner

Before using the Developer Unit for the first time, you have to fill it with Starter Toner. One bottle of Starter Toner (8) with a spout (9) is in the box of the Developer Unit. Shake the bottle several times to mix the carrier and the toner. Carefully open the seal underneath the cap of the toner bottle and attach the spout to the bottle. Open the top cover (28) of the Developer Unit. Spread the toner evenly across the opening.

Note: Do not squeeze the toner bottle since the toner could be blown out of the hopper and contaminate the printer. If the toner bottle does not completely empty, gently tap the end of the bottle while holding it upside down over the hopper.

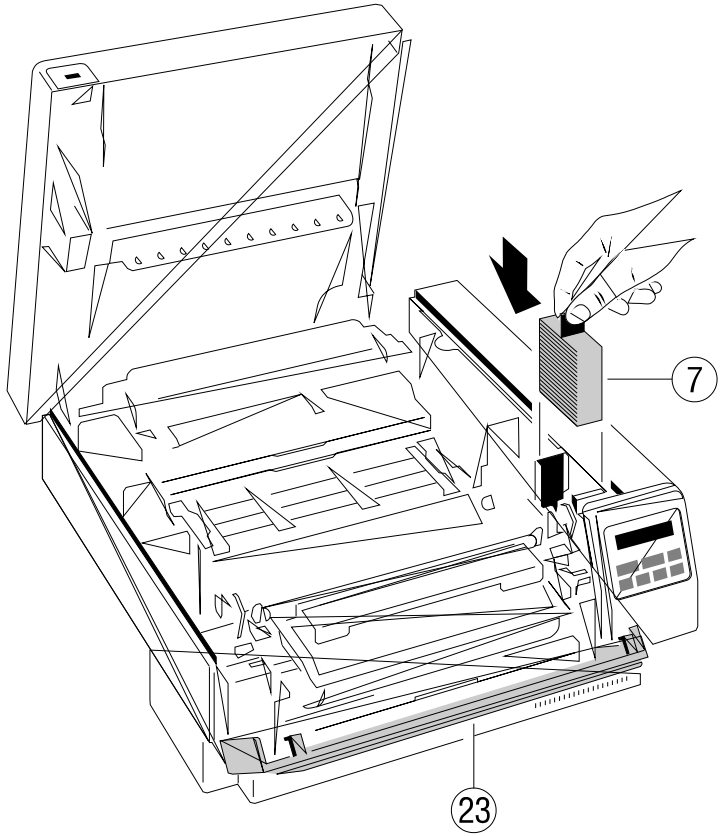
This first filling only allows Starter Toner to be used. Refilling any other toner is not allowed before the message "Toner Low" appears on the display.



Close the top cover (28) of the Developer Unit. If you hear a "click" the shutter is completely closed.

Inserting the Ozone Filter

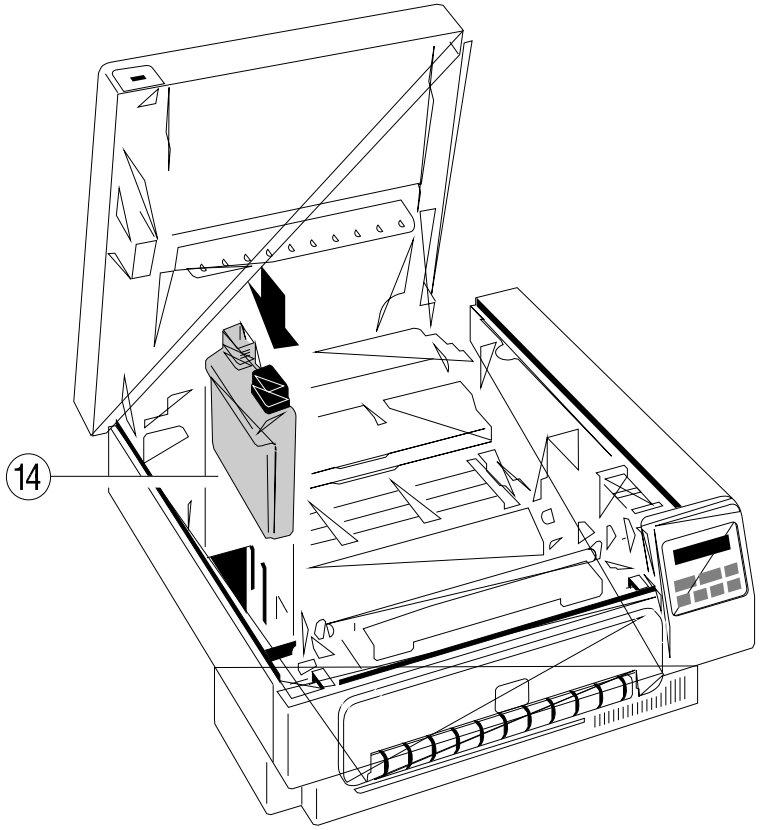
The box of the Developer Unit also contains an Ozone Filter (7), a black rectangular block. On one of the narrow sides there is a small tab to hold the filter. Insert the Ozone Filter into the slot immediately behind the operator panel and beside the Developer Unit.



Firmly close the front cover (23).

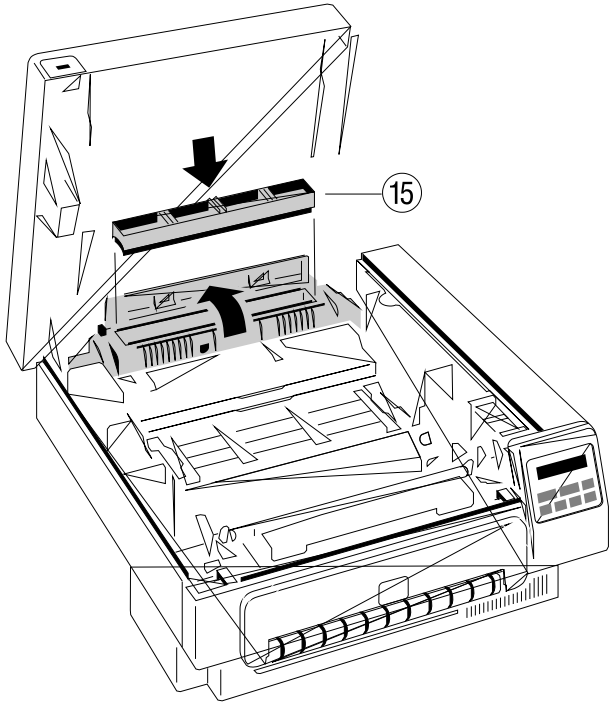
Installing the Waste Toner Container

The toner box contains two Waste Toner Containers (14). Take one of them and insert it into its opening at the inner left side of the printer immediately behind the Developer Unit. Be sure the green cap is on the cap holder and not blocking the filling hole of the container.



Inserting the Cleaner Felt

The toner box also contains two Cleaner Felts (15). Take one of them and put it under the top cover of the Fuser Unit in the back of the printer. After inserting the felt, the top cover does not lock completely. Don't worry about this, the printer top cover will provide the necessary pressure to keep the cleaner felt cover tight.

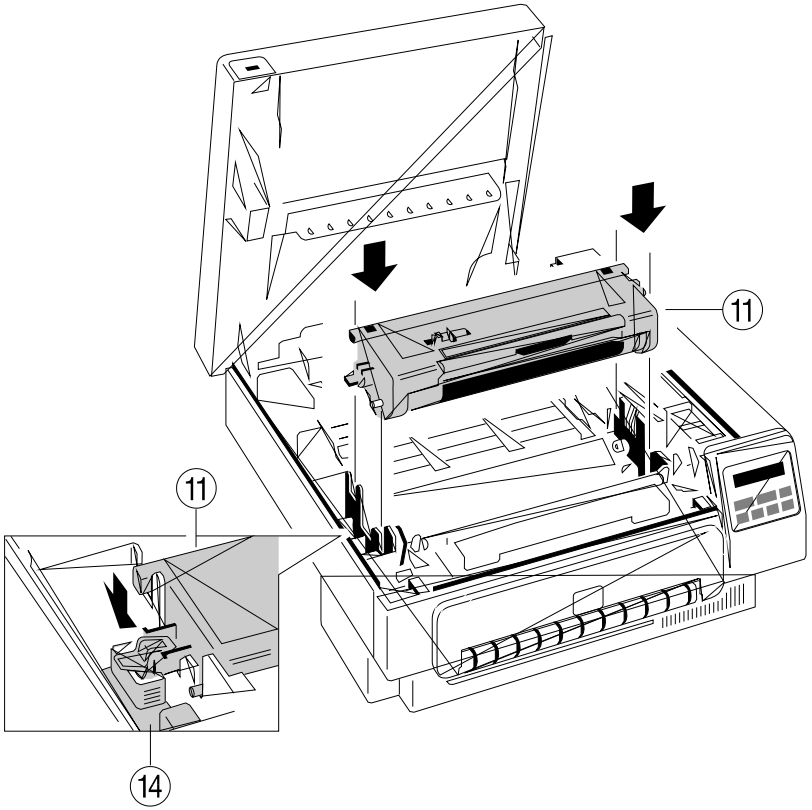


Installing the OPC Drum

The OPC Drum (11) is packed separately in the Starter Kit. The OPC Drum is very light-sensitive, so it is wrapped up in light proof foil. Carefully remove the drum from its foil container.

Note: Do not touch the green part of the OPC Drum with your fingers. Oil and dirt degrade print quality.

Do not expose the light-sensitive OPC Drum room lighting or sunlight any longer than necessary.

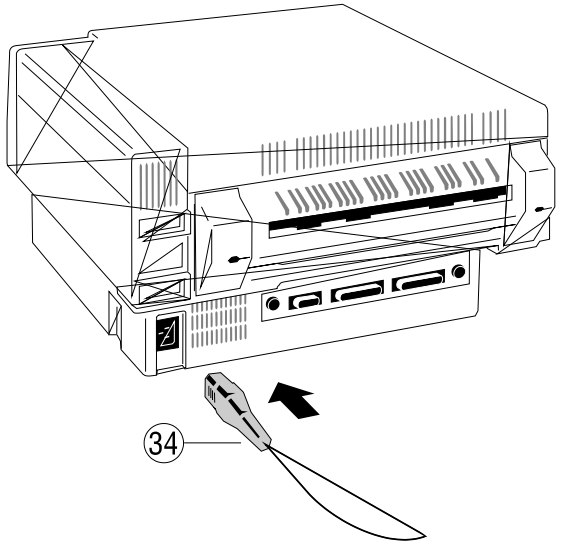


Insert the OPC Drum into the printer behind the Developer Unit. Gently press the top of the OPC unit to make sure it is completely shut. The opening for the toner waste is now over the Waste Toner Container (14).

1.3 The Power Supply

Since an incorrect voltage selection can seriously damage the printer, please pay special attention to the following:

- Make sure that the specified voltage on the type plate corresponds to your mains voltage:
  100V-120V for 115V and 230 V for 220V - 240 V alternating current

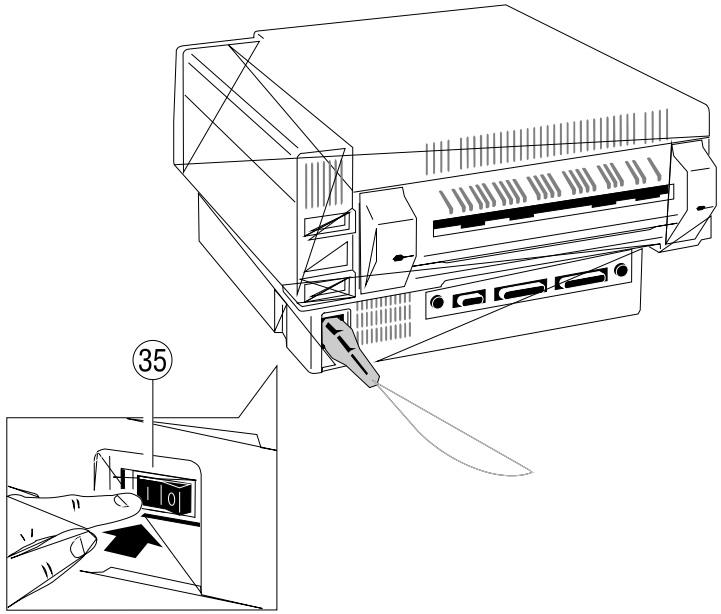


- Connect the printer to the mains using the power cord (34). First connect the cable to the power cord socket and then to the mains.

Note: As the power cord serves as a safety cut-off, its connection to the printer must be accessible at any time.

1.4 Power ON/OFF Switch

The power ON/OFF switch (35), at the right side at the rear of the printer, turns the printer's power supply ON or OFF.



When switched **ON** shortly the revision level of the Bootstrap software that is installed in the printer appears on the display:

The display signals the message:

M E M O R Y T E S T
P L E A S E W A I T . . .

After successful completion the following message appears:

I N I T I A L T E S T O K
S T A R T I N G P P O S . . .

Further tests are performed now. The indicators **READY**, **DATA**, and **ONLINE** are switched off; all fields of the display shortly show black squares and a short beep sounds.

On the display two messages pop up shortly after each other:

O F F L I N E
P C L

Then the display changes into:

O N L I N E (n)

Now the printer is ready for operation, the indicators **READY** und **ONLINE** light up. (n) displays the choosen profile.

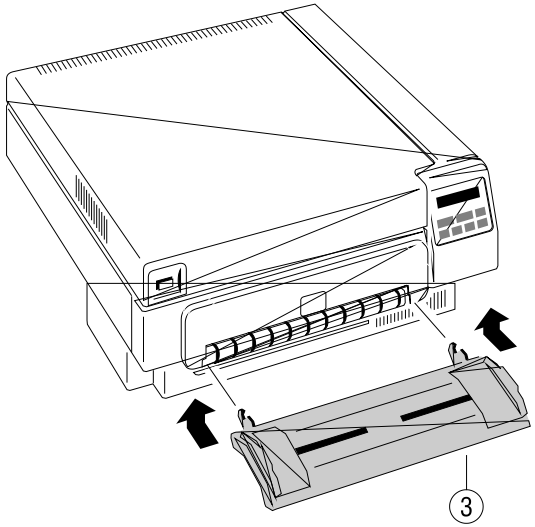
1.5 Inserting Fanfold Paper

The printer has a tractor which can handle fanfold paper of a minimum width of 4 inch and a maximum width of 10 inch.

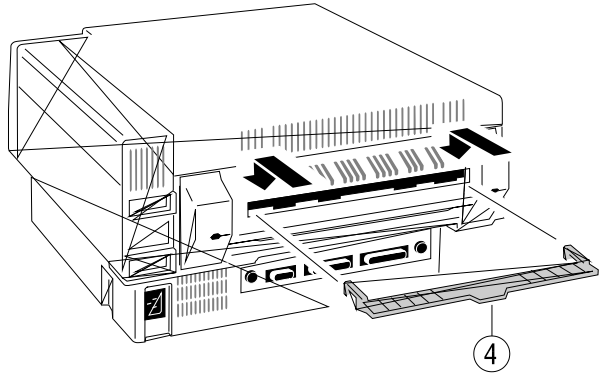
Ensure that the printer is placed on its printer stand (option) to guarantee an optimal paper run. If you do not use the printer stand, align the printer with the front edge of the table.
Depending on paper property, it would be helpful to use the printer together with the OTC PC24 Stacker System (option).
The cables at the rear of the printer should not block the paper path.

Installation of Paper Guides
Use the delivered paper guides to ensure a straight paper path. The paper guides are in the same box as the power cord.

Insert the larger Entry Paper Guide (3) into the front of the printer so that the plastic hooks fit just inside the right and left edges of the paper entry slot.

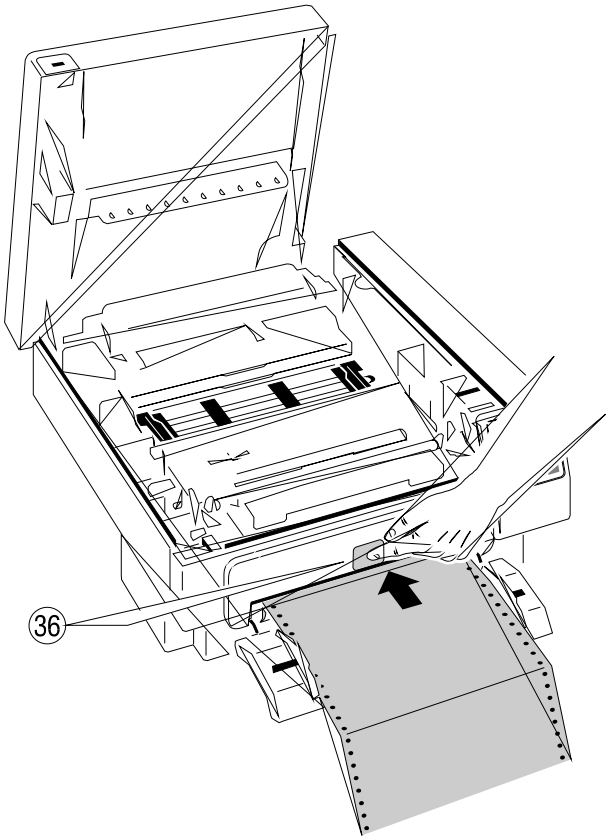


Insert the smaller Exit Paper Guide (4) at the rear of the printer so that the plastic hooks fit precisely inside the right and left edges of the paper exit slot. The edge of this paper guide also serves as tear-off edge.



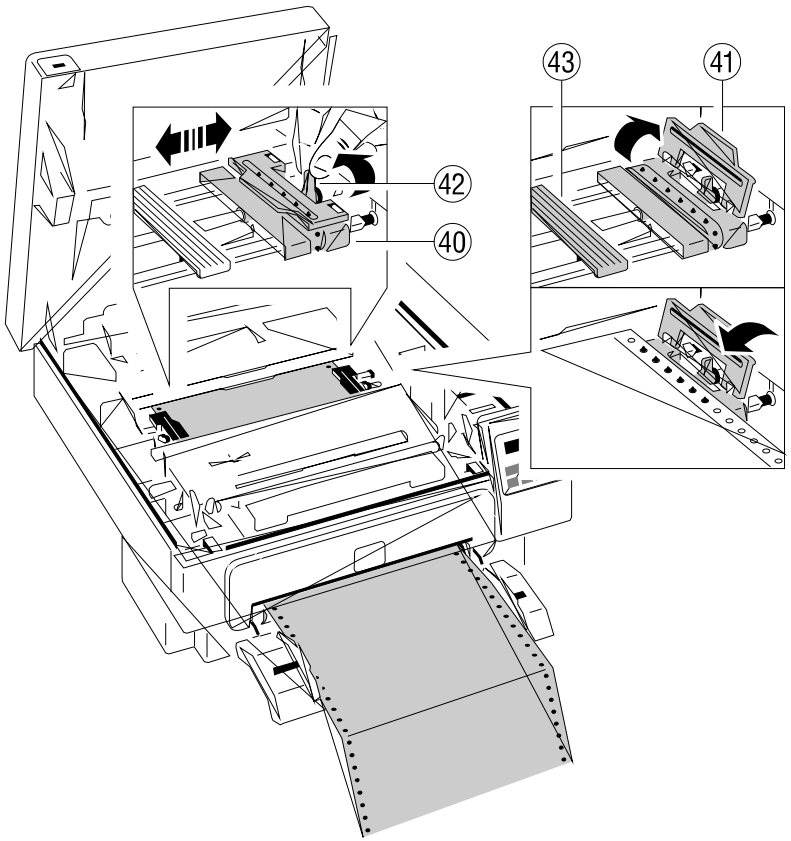
Inserting paper for the first time or changing to another paper width:

1. Open the top cover
2. Insert the paper into the slot at the front of the printer. Press and hold the center button (36) on the front of the printer. The button releases the paper rollers for paper insertion. Shift the paper into the slot until it appears behind the OPC unit near the tractors. If you now release the button the paper is kept by the rollers and your hands are free to adjust the tractor.



3. Unlock the tractors (40) by moving the two green locking levers (42) to their upright position.
4. Roughly adjust the tractors (40) to the paper width, and space out the paper supports (43) evenly.
5. Open the tractor covers (41) and place the paper evenly on the pins. Close the tractor covers (41). Be sure the top edge of the paper does not extend the tractors.
6. Adjust the width of the tractors so that the paper is taut between the tractors and secure the tractors using the locking levers (42).

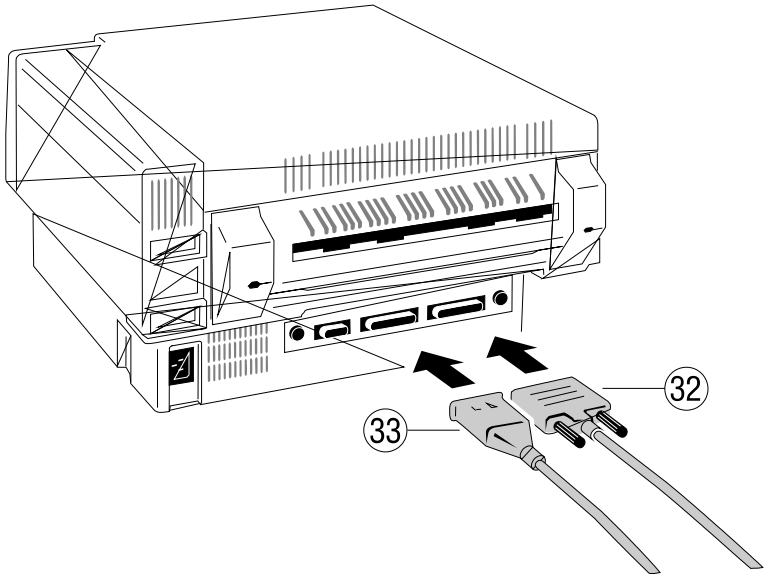
Note: The pins of the tractor (40) must be centered into the transport punches of the paper.



1.6 Connection to the Computer

Parallel

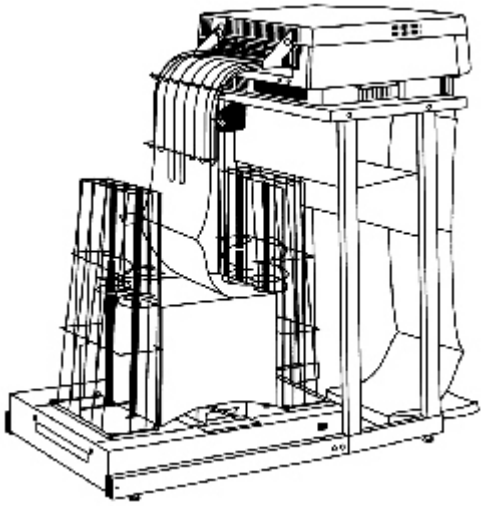
- Switch the printer and the computer OFF.
- Connect the interface cable coming from the computer to the printer's parallel (33) or (serial (32) port, special option only).



1.7 Connecting the Stacker System

As an option to the printer there is also an OTC PC24 Stacker System available.

For installation please follow the instructions in **Chapter 6**. These instructions also explain how to connect the stacker and the printer to the mains.



2 Printer Operation

2.1 Control Panel

The control panel
- Gives information about the printer status
- Controls various parameter settings
- Allows manual control of the paper handling

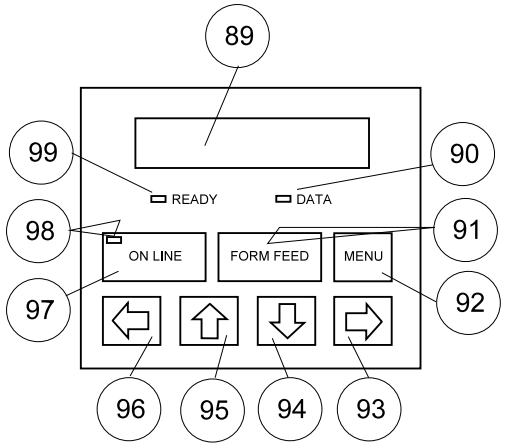
2.1.1 Description of the Four Indicators

The 2-line Liquid Crystal Display (LCD) (89) indicates the current status of the printer. If any error occurs (e.g. COVER OPEN), the resulting error message will be displayed. While configuring, the printer menu settings and parameters appear on the display.

The indicator READY (99) is lit, if the printer is supplied with power by setting the power ON/OFF switch to ON or when an error no longer occurs (e.g. the cover is closed).

The indicator DATA (90) is lit, if the buffer contains data. While data is transmitted the display is flashing.

The green indicator in the field ONLINE (98) is lit when the printer is in the ONLINE mode. Print jobs can be accepted and performed.



2.1.2 Description of the LCD Display

The LCD Indicator gives information about the status of the printer.
In general you can distinguish the following messages:
- ONLINE messages
- OFFLINE messages

When the printer is in the **ONLINE** mode the display shows:

```
O N L I N E ( n )
```

When the printer is in the **OFFLINE** mode status information, error messages or menu messages can be displayed.
Status and error messages are displayed:

```
O F F L I N E
M E S S A G E
```

Example: The printer is warming up:

```
O F F L I N E
W A R M I N G   U P
```

Menu messages are displayed:

```
O F F L I N E   M E N U
M E S S A G E
```

Example: Display after pressing the MENU key:

```
O F F L I N E   M E N U
P R I N T I N G   M E N U
```

2.1.3 Function Keys

The function keys of the operator panel are grouped into two rows. The function of the seven keys (91) to (97) depends on the printer operation state.

Short Description of Keys in the **ONLINE** mode

Number	Symbol	Display
		- Function
97	OFFLINE	**OFFLINE** - Changing to the OFFLINE mode - Stops data transfer

Note: In the ONLINE mode all other keys have no function.

Short Description of Keys in the **OFFLINE** mode

Number	Symbol	Display
		- Function
97	ON LINE	**ONLINE** - Changing to the ONLINE mode - Starts data transfer - Leaving the MENU-mode
91	FORM FEED	**FORMFEED** - Formfeed is only activated if data is in the buffer
92	MENU	**MENU** - Activates the MENU mode
93	⇦ ⇧ ⇩ ⇨	**CURSOR Keys** - Navigation through the menu - Selection of parameters - Activation of adjustments

Note: The cursor keys ⇧ ⇩ have an auto repeat function.

2.2 Menu Mode

All operator selectable features are accessible via the control panel and combined in the printer MENU.

This feature provides:
- Easy handling of configuration (language, etc.)
- Quick parameter changes
- Activation of test functions

The menu has three levels:
- Level 1 the Main Function
  - Allows the selection of a group of sub functions
- Level 2 Sub Functions
  - Can be activated as a function or allows to choose a group of values
- Level 3 Parameters and values
  - Can be select/activate in this level

2.2.1 Activate the Menu

To activate the menu, please follow the next steps:

- Press [ON LINE]
  The printer enters the OFFLINE mode
  the display shows

  OFFLINE

- Press [MENU]
  the display shows

  MENU
  PRINTING MENU ⇒

Selection of functions and parameters in one menu level:

- Press [⇧] or [⇩]; the keys have a wrap around function, i.e. after the last value the first value is repeated.

On the display you will find the following characteristic messages:

MENU
MENU TEXT ⇒

This is only displayed if you are in the Main Function. To switch the next level, press [⇨].

MENU
⇐ MENU TEXT ⇒

Now you are in a Sub Function. Movement in both directions is possible by using the [⇦] key or the [⇨] key.

In the last level to select/confirm values, the asterisk (*) to the right indicates the actual selection.
By using the [⇧] or [⇩] key, you are able to change values.

MENU
**⇐ MENU TEXT *

2.2.2 Confirm a new Selection

- Press [⇨]; the confirmed value is displayed with an asterisk (*) in the last position as shown in the picture before.

Note: All new values will be saved at once!

The Menu mode is left either by pressing the [MENU] or [ON LINE] key.

Note: The actual configuration can be printed with the function **PRINT TEST**.

2.3 Status and Error Messages

If the printer is powered on and ready to execute a print job, the following messages can be displayed on the operator panel:

ONLINE

POWER SAVE

The printer changes into this mode after a user defined period elapsed without printing. In power save mode the printer switches off the fuser heating, some fans and the motors. Power dissipation of the POWER SAVE mode is **less than 40 watt**. With a new print job, the ONLINE mode is resumed.

OFFLINE
WARMING UP

This message is displayed when the fuser unit of the printer is warming up to the chosen temperature. When this temperature is reached the printer switches to the ONLINE mode and starts printing, if data is in the buffer.

The following messages are displayed if a condition exists which prevents normal operation of the printer. The printer enters the OFFLINE mode.

OFFLINE
NO PAPER

Displayed if a print job is in process and the paper guide is running empty.

OFFLINE
TONER LOW

Displayed if toner has to be refilled (**chapter 4**).
This message can also be caused by a missing or badly installed developer unit.

OFFLINE
COVER OPEN

Displayed if the top cover is open. After closing the cover, the printer switches to the ONLINE mode.

OFFLINE
PAPER JAM #

This message will be displayed, if after a paper jam, the fanfold paper can not be transported correctly. The number # gives an indication for the place or cause of the paper jam:

0	Paper jam at paper entry of the fuser unit
1	Paper jam at the rear paper exit of the printer
2,3	Malfunction of the Top of Form sensor
4	Error with paper transportation in the tractor unit
5	Malfunction when opening or closing the fuser
6	Error with paper transportation in the fuser unit

Note: In case of messages like **NO DRUM UNIT** ... see Chapter 5 **Troubleshooting and Diagnostics.**

onfiguring the Printer

3.1 What is Configuring?

This chapter describes how to use the operator panel and menu settings to set up or configure your printer so that the printer, and your computer system, can communicate correctly with each other.

Communication between the two requires that both the computer operating system and the printer have the same communication settings or features. The most important of those are:
- Emulation
- Paper format

You may also need to change some of the printer's other features depending on your hardware and application requirements, for example:
- Paper handling
- Text processing.

The MENU mode allows you to access the configuration memory. All settings of the printer are stored in this memory and can be printed out on a list. Possible settings are discussed in detail in **3.3 Explanation of Individual Menu Items**.

The **SELFTEST** printout illustrates the actual printer set-up. The following steps show which keys to use to start this printout.

	Key	Display
1.	Switch the printer ON	**ONLINE** (after initialisation)
2.	ON LINE	**OFFLINE**
3.	MENU	**MENU** **SELECT PROFILE** →
4.	⇧	**MENU** **TEST INFO** →
5.	⇨	**MENU** ← **MACHINE COUNT** →
6.	⇧	**MENU** ← **PCL TYPE LIST**
7.	⇧	**MENU** ← **CONT SELF TEST**
8.	⇧	**MENU** ← **SELF TEST**
9.	⇨	**TEST PRINT** ← **SELFTEST** *

The printer starts with the SELFTEST printout. When printing is completed, the following message will be displayed:

10.		**MENU** ← **SELFTEST**

The printer returns to the operating mode after pressing the ONLINE key:

11.	ON LINE	**ONLINE**

Configuring the Printer

3.2 Printout of Standard Configuration

The default configuration of the printer as defined in the factory, can be recalled by the RECALL FACTORY function. This configuration is shown on the following page.

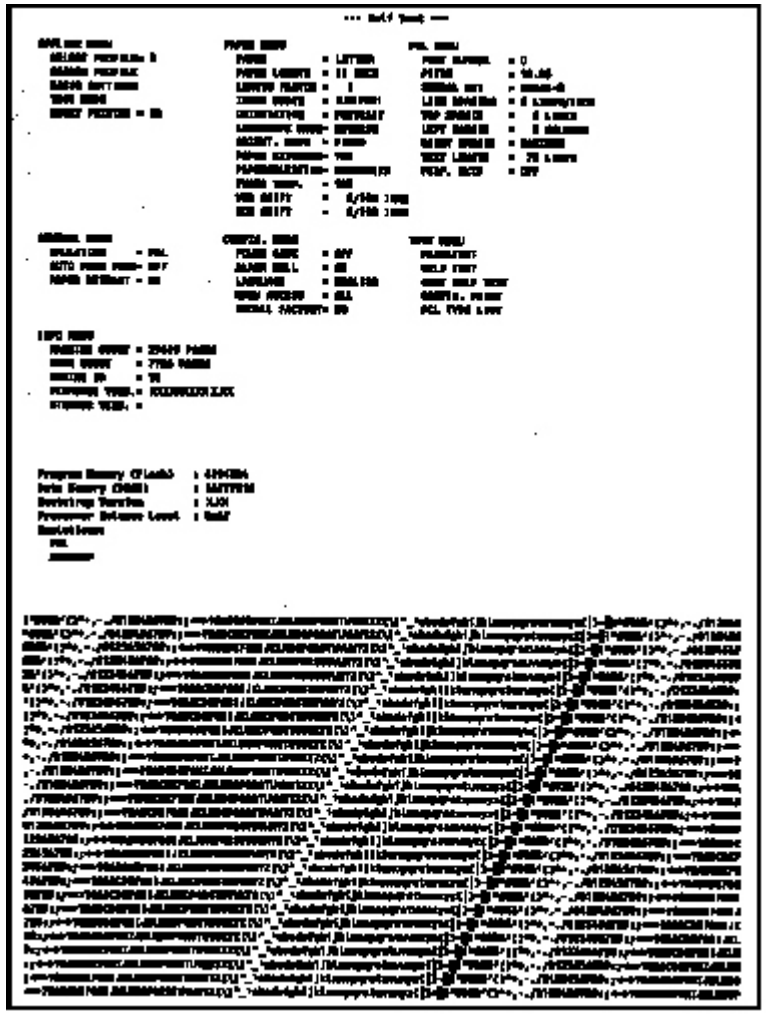
The upper part of the SELFTEST printout shows the actual configuration parameters. Main functions appear in the fist line of every menu block.

The second and following lines give information about the subfunction and the selected parameters after the = sign.

Below the configuration parameters, a block of data gives information about the firmware level of the printer.

The rest of the page is filled up with a diagonal test pattern.

The frame around the page is equal to the printable area of the actual selected format. This is helpful to adjust a printout on the paper. The frame of the default format A4 shows a pagelength of 11 2/3 inch (297mm) and a image width of 8.25 inch (210 mm).



```
RSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789!§ABCDEFGHIJKLMN
OPQRST
STUVWXYZabcdefghijklmnopqrstuvwxyz0123456789!§ABCDEFGHIJKLMNO
PQRSTU
TUVWXYZabcdefghijklmnopqrstuvwxyz0123456789!§ABCDEFGHIJKLMNOP
QRSTUV
UVWXYZabcdefghijklmnopqrstuvwxyz0123456789!§ABCDEFGHIJKLMNOPQ
RSTUVW
VWXYZabcdefghijklmnopqrstuvwxyz0123456789!§ABCDEFGHIJKLMNOPQR
STUVWX
WXYZabcdefghijklmnopqrstuvwxyz0123456789!§ABCDEFGHIJKLMNOPQRS
TTUVWX
XYZabcdefghijklmnopqrstuvwxyz0123456789!§ABCDEFGHIJKLMNOPQRST
TUVWXY
YZabcdefghijklmnopqrstuvwxyz0123456789!§ABCDEFGHIJKLMNOPQRSTT
UVWXYZ
Zabcdefghijklmnopqrstuvwxyz0123456789!§ABCDEFGHIJKLMNOPQRSTTU
VWXYZa
abcdefghijklmnopqrstuvwxyz0123456789!§ABCDEFGHIJKLMNOPQRSTTUV
WXYZab
bcdefghijklmnopqrstuvwxyz0123456789!§ABCDEFGHIJKLMNOPQRSTTUVW
XYZabc
cdefghijklmnopqrstuvwxyz0123456789!§ABCDEFGHIJKLMNOPQRSTTUVWX
YZabcd
ghijklmnopqrstuvwxyz0123456789!§ABCDEFGHIJKLMNOPQRSTTUVWXYZab
cdefgh
```


3.3 Configuration Programs

The following programs for printer configuration are available:

- **Profiler**
  A program for easy programming of all print job specific parameters into **Profiles**.

- **Profile Selector**
  For easy selection of one predefined profile.

Note: Both programs are running under Windows 95/98 and NT 4.0

3.3.1 Installation

Follow standard procedures:

- For installation of the English version of the Profiler from the CD select in the Windows Start Menu the function **Run**... and type the command:

  D:\profiler\install\usa\disk1\setup.exe

- For installation of the English version of the Profile Selector from the CD select in the Start Menu the function **Run**... and type the command:

  D:\selector\install\usa\disk1\setup.exe

Note: In both examples the letter D: is used for the CD-Rom drive.

After installation both programs are listed in the screen **Programs** of the Windows Start Menu.

3.3 Configuration Programs

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- For installation of the English version of the Profile Selector from the CD select in the Start Menu the function **Run**... and type the command:

  D:\selector\install\usa\disk1\setup.exe

Note: In both examples the letter D: is used for the CD-Rom drive.

After installation both programs are listed in the screen **Programs** of the Windows Start Menu.

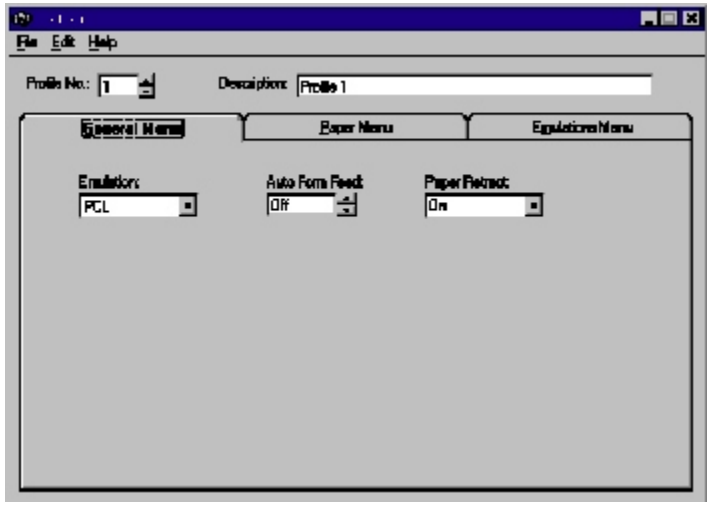
3.3.2 Profiler

In the Profiler the following menus are available:

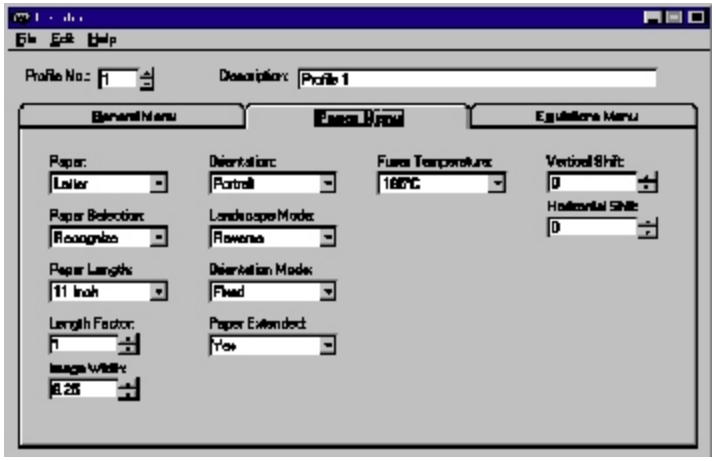
- General Menu
- Paper Menu
- Emulations Menu

Note: These three menus are available for all profiles.

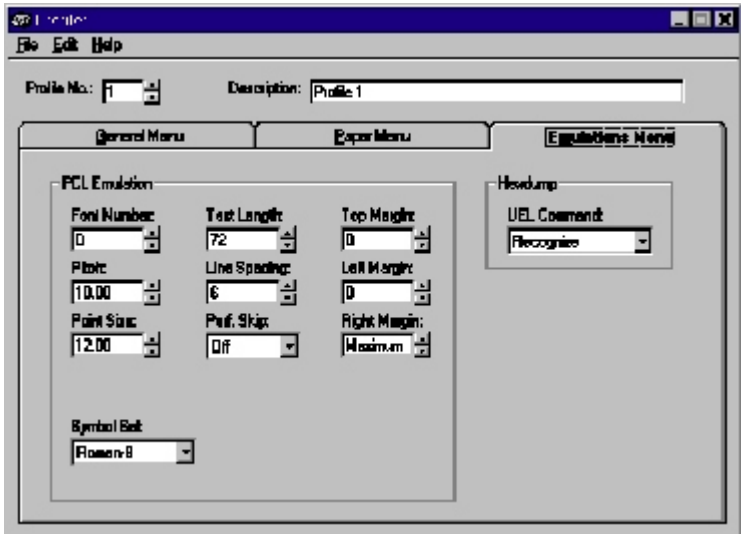
General Menu:



Paper Menu:

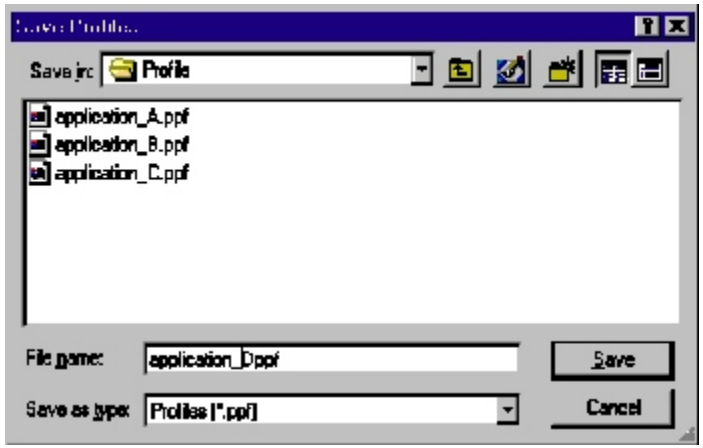


Emulations Menu:

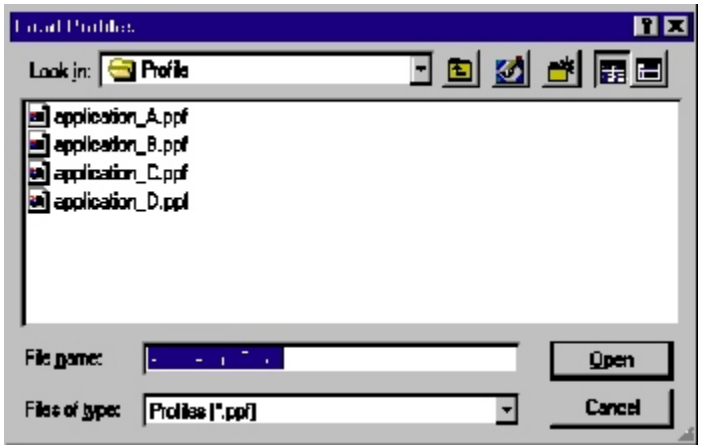


Already defined profiles can be saved, loaded for updating, and downloaded into the printer:

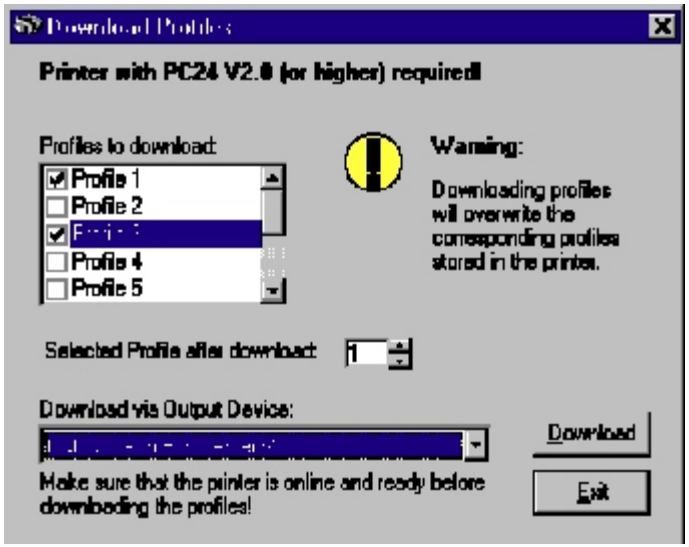
Save Profile:



Load Profile for updating:



Downloading of profiles into the printer and activating of one profile:

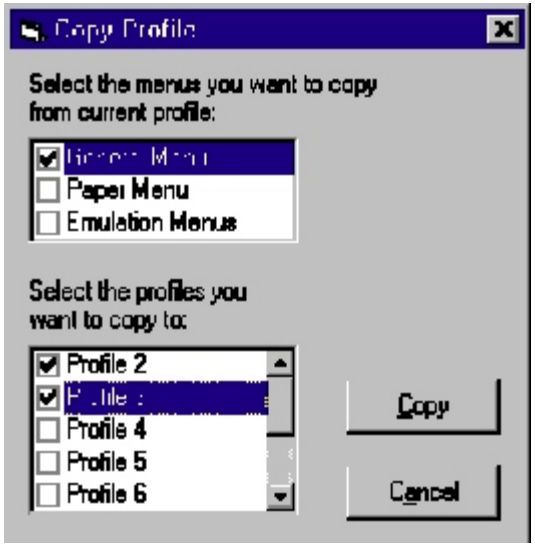


Warning: All downloaded profiles will overwrite the corresponding profiles stored in the printer!

Edit Profile:

Copying of already defined profiles or resetting of profiles to factory settings:

Copy of menus into profiles:



3.4 Explanation of Individual Menu Items

The menu of printers have the following main and subfunction to configure the printer:

Main function PRINTING MENU

Within the Printing menu the layout of the print page is configurable.

- **PAPER**
  A choice out of three different paper sizes can be made:
  A4
  LETTER
  CUSTOM
  If **A4** or **LETTER** is selected the printer automatically sets all parameters which define the allocation of the print image on a page. Those parameter values are in accordance to the PCL5 definition.

  In case of **A4** the contents of an A4 page is printed asymmetrically onto a 12inch form which leads to a larger bottom margin than on the top of A4.

  In case of **LETTER** the page contents are printed onto an 11inch form.

  Note: If the paper size is changed from one format into another the printer selects the default values of the format describing parameters (PAPER LENGTH, IMAGE WIDTH etc.) which belong to the chosen paper size.

- **PAPER EXTENDED**
  With PAPER EXTENDED set the border areas ofA4 to **NO.** the border areas of A4 and LETTER pages are not printable, conform to the PCL5 definition. For compatibility to existing applications, which use the border areas, PAPER EXTENDED can be set to **YES**. The complete physical page is printable with unchanged default cursor position.
  With format, CUSTOM the complete page can always be printed but the default cursor position is different to A4.

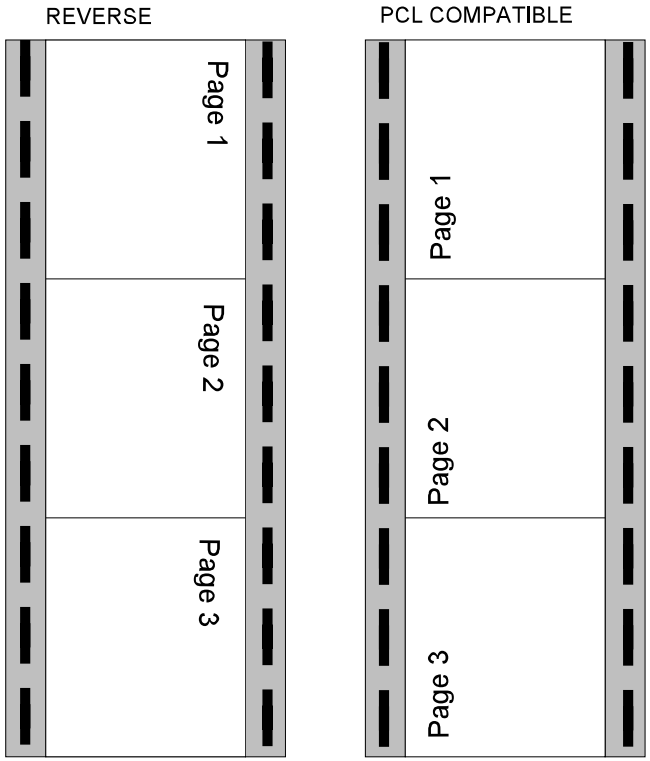
- **ORIENTATION**
  The orientation of the print image may either be **PORTRAIT** or **LANDSCAPE**. The physical orientation of the print image is influenced by the setting of LANDSCAPE MODE and ORIENTATION MODE.

  Note: If the orientation is changed from one direction to another, the page describing parameters (PAPER LENGTH, IMAGE WIDTH etc.) are set to the corresponding default values.

  Note: If printing is performed in LANDSCAPE, and the selected values for image width and line spacing don't lead to an integer multiple of lines within this image area, the result will be a displacement in the print image between two contiguous pages. An evenly arranged print image can only be achieved by either adapting the image width to the line spacing or by selection of PERF.SKIP = ON.

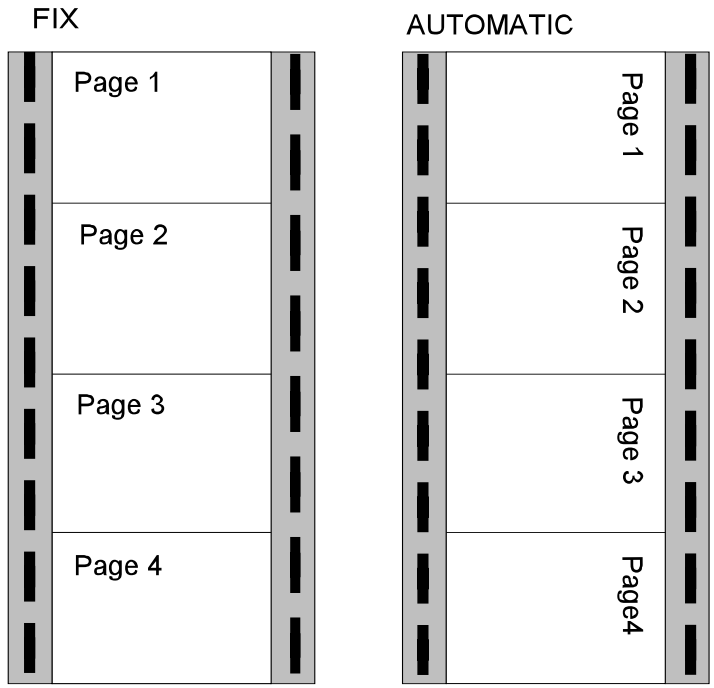
- **LANDSCAPE MODE**
  The orientation of the print image is influenced by this parameter. Setting landscape mode to **REVERSE** rotates the image of LANDSCAPE to REVERSE LANDSCAPE and REVERSE LANDSCAPE to LANDSCAPE.
  This makes successive pages with landscape orientation readable like a book. Selection **PCL COMPATIBLE** is conformed to the landscape orientation of Hewlett Packard printers.

  Print sample for configuring LANDSCAPE MODE
  with ORIENTATION MODE = FIX



- **ORIENTATION MODE** (ORIENT. MODE)
  The Orientation Mode defines the print image rotation for CUSTOM paper format. Setting the Orientation Mode to **FIX** (default)ensures that the print orientation of a form with paper length, is shorter than the image width, which is not rotated. It is printed in the same orientation as with 12 inch length.
  If the form length is shorter than the image width, Setting the Orientation Mode to **AUTOMATIC** rotates the print image.. This selection is necessary for applications which have PCL compatible automatic rotation.

  Print sample for configuring ORIENTATION MODE
  with portrait and LANDSCAPE MODE = REVERSE:



- **LINE SPACING**
  The distance between print lines is determined in lines/inch; selectable values are: 1,2,3... 48 lines/inch. Default is 6 lines/inch.

The next menu items of the PRINTING MENU are only offered for selection if the actual **paper size is set to CUSTOM**.

- **PAPER LENGTH**
  The paper length can be selected in the range from 3 inch (76.2 mm) up to 20 inch (508.0 mm) in steps of 1/6 (4.23 mm) or 1/8 inch (3.18 mm):

  3; 3 1/8; 3 1/6; 3 1/4; 3 1/3; 3 3/8; 3 1/2; 3 5/8;
  3 5/6; 3 3/4; 3 7/8; 4;.....**12**; 20

  Note: If ORIENTATION = LANDSCAPE is selected the paper length now corresponds to page width.

  Note: In case of forms with paper length > 13.5 inch (345.45 mm) the data buffer of 8 MB is not sufficient to ensure a continuous printing. In those applications an additional memory module of min. 4 MB must be inserted.

- **IMAGE WIDTH**
  The width of the print image can be selected from min. 0.5 inch (12.7 mm) up to max. 8.25 (209.55 mm) in steps of 0.05 inch (1.27 mm):

  0.50; 0.55; 0.60; 0.65; 8.20; **8.25**

  Note: If ORIENTATION = LANDSCAPE is selected the image width now corresponds to page height.

- **TOP MARGIN**
  This parameter defines the number of lines between the top paper edge and the first print line. Any value from 0 up to 999 lines can be chosen; factory default value is 0.

- **LEFT MARGIN**
  This parameter defines the displacement of the first print position of a print line from the left border of the printable area. Any value from 0 up to 999 positions can be selected; factory default value is 0.

- **RIGHT MARGIN**
  The parameter value defines the distance of the last print position within a line from the left border of the logical page. Any value in the range from 0 up to 999 and **MAXIMUM** can be selected; factory default is MAXIMUM.
  Right Margin should only be set to a defined value if the application requires a text formatting by the printer.

  Note: Setting RIGHT MARGIN to a definite value in applications with down load Fonts or with rotation to landscape mode can cause data loss of characters.

- **TEXT LENGTH**
  The parameter defines the number of lines on a page; exceeding this limit leads to a transition onto the next following page. Any value from 0 up to 999 can be selected; factory default value is 72. The parameter is ignored if PERF. SKIP = OFF was selected.

- **PERFORATION SKIP** (PERF. SKIP)
  In case of PERF. SKIP = **ON** the printer takes the values of TOP MARGIN and TEXT LENGTH into account on each page.
  If PERF. SKIP = **OFF** is selected the printer prints over the perforation. At the transition onto a next following page the values of TOP MARGIN and TEXT LENGTH are ignored. Factory default selection is OFF.

Main function PCL MENU

This menu defines the default parameters for the PCL emulation like PCL typeface, character size, pitch and symbol set.

- **FONT NUMBER**

  The font number selects one of the 54 PCL typefaces to the default font within PCL emulation. A printout of the PCL TYPE LIST can be started within the TEST MENU. Default is font No. 0 (COURIER)

- **PITCH**

  Pitch defines the character size for FONT NUMBER 0, and 39 to 44. The value can be selected from 0.44 to 99.99 CPI.
  Default is 10.00 character per inch.

- **POINT SIZE**

  For FONT NUMBER 1 to 38 character scale is defined as point size. The value can be selected from 4.00 to 999.75 PT in steps of 0.25.
  Default is 12.00.

Note: FONT NUMBER 45 to 54 are not scalable, the menu item PITCH or POINT SIZE is not available.

- **SYMBOL SET**

  Symbol Set is a code table of characters and symbols.
  Factory default is the ROMAN-8 symbol set. One of the following 31 different types can be set to be the standard in PCL.

Display	Symbol Set	ID number
ROMAN-8	Roman-8	8U
ISO L1	ISO 8859/1 Latin 1	0N
ISO L2	ISO 8859/2 Latin 2	2N
ISO L5	ISO 8859/5 Latin 5	5N
PC-8	PC-8 Code Page 437	10U
PC-8 DN	PC-8 Danish/Norwegian	11U
PC-850	PC-850 Multilingual	12U
PC-852	PC-852 Latin 2	17U
PC-8 TK	PC-Turkish	9T
WIN L1	Windows 3.1 Latin 1	19U
WIN L2	Windows 3.1 Latin 2	9E
WIN L5	Windows 3.1 Latin 5	5T
DESKTOP	Desktop	7J
PS TEXT	PS text	10J
VN INTL	Ventura International	13J
VN US	Ventura US	14J
MS PUBL	Microsoft Publishing	6J
MATH-8	Math-8	8M
PS MATH	PS Math	5M
VN MATH	Ventura Math	6M
PI FONT	Pi Font	15U
LEGAL	Legal	1U
ISO-4	ISO United Kingdom	1E
ISO-6	ISO US ASCII	0U
ISO-11	ISO Swedish	0S
ISO-15	ISO Italian	0I
ISO-17	ISO Spanish	2S
ISO-21	ISO German	1G
ISO-60	ISO Norwegian	0D
ISO-69	ISO French	1F
WIN 3.0	Windows 3.0 Latin 1	9U

Main function HEXDUMP MENU

The HEXDUMP MENU defines the execution of control sequences when the HEXDUMP mode is activated.

- **UEL COMMAND**

  Universal Exit Language commands can be set to **RECOGNIZE** or **IGNORE**. That means this code can be executed in HEXDUMP mode or the command is ignored and printed out as hex code. UEL commands are parts of the Printer Job Language (PJL).

Main function JOB MENU

Basic operation parameters for a print job are defined in the main function JOB MENU.

- **EMULATION**

  The Emulation determines the printer command code set. Default emulation is PCL (PCL5E).
  The function HEXDUMP is useful to analyse the data received by the printer. Control codes are not carried out, instead all data including command codes are printed out in hexadecimal format and as ASCII characters. Any non-printable characters, such as CR are only represented as a point (.) in the ASCII list.

- **AUTOMATIC FORMFEED**

  If the print data does not fill a complete page or if there is no Form Feed command (HEX 0C) at the end of a page this page is not printed out. The page is staying in the printer memory if this parameter is set to **OFF**. An incomplete page is automatically printed after a selectable time period at the end of a print job. (Pause in datastream) The time period can be set from **1 to 120 second**.

- **FUSER TEMP.**

  This parameter allows to adjust the fuser temperature. Default value is 185 °C, selection is possible from 165 °C to 185 °C in steps of 5 °C. Fuser temperature adjustment is necessary when printing temperature sensitive formsets (labels).

- **VERTICAL SHIFT** (VER SHIFT)
- **HORIZONTAL SHIFT** (HOR SHIFT)

  The parameters **VER SHIFT** and **HOR SHIFT** allow to precisely position the print image vertically (+50...-16/100) and horizontally (+50...-50/100). The adjustment can be done in steps of 1/100 inch (0.25 mm); factory default value of both parameters is zero.

Main function CONFIG MENU

Configuration menu includes subfunction to define the display language and reset the printer.

- **POWER SAVE**

  The time to enter the power save mode can be set to 15, 30, 45, 60 MIN or OFF. Factory default is **15 MIN**. In power save mode the printer switches off the fuser heating and fan. The message POWER SAVE is displayed on the operator panel.

- **PAPER SELECTION**

  Selecting the paper format (A4, LETTER, CUSTOM) with software can be done with PCL or PJL commands. The execution of this commands can be influenced by the parameter PAPER SELECTION.
  With PAPER SELECTION = **IGNORE** all software commands are ignored and the format can only be modified with the operator panel.
  PAPER SELECTION = **ONLY PJL** means that PCL commands are ignored. With PAPER SELECTION = RECOGNIZE all software command are valid. This parameter is useful when printing existing applications on different fanfold paper. (Letter application on 12 inch)

Note: PC24 WINDOWS printer driver use PCL and PJL commands.

- LANGUAGE

Selects the language of the display.
Default is **ENGLISH** available are:
ENGLISH, FRANCAIS, DEUTSCHE, ITALIANO, ESPANOL

Note: Only in ENGLISH and GERMAN are all displayed messages fully supported in the individual language.

- RECALL FACTORY

The factory default configuration can be recalled.

Main function for TEST MENU

TEST MENU is used to give life information of the printer and consumables, and for starting test printouts. This includes the actual printer configuration and PCL Font listing.

- MACHINE LIFE

This value is an indication for the printed pages of the print engine. The counter is not modified when changing the control unit.

- DRUM LIFE

This value is an indication for the printed pages of the OPC drum. The counter is set to zero if an new OPC is inserted.

Note: These pagecounters are incremented with every paper move of 11 inch; independent of move direction. The selected actual page length is not calculated.
Example: A print job of 10 pages (A4) increments the counters by 13. Printing a single A4 page increments the counter by 3 pages.

- ENGINE ID

Only for service information.

- **SELF TEST**

This item is used to start the printout of the self test page with the actual configuration and diagonal character test. (chap. 3.2)

- **CONT. SELF TEST**

The self test page is printed continuously until any key is pressed.

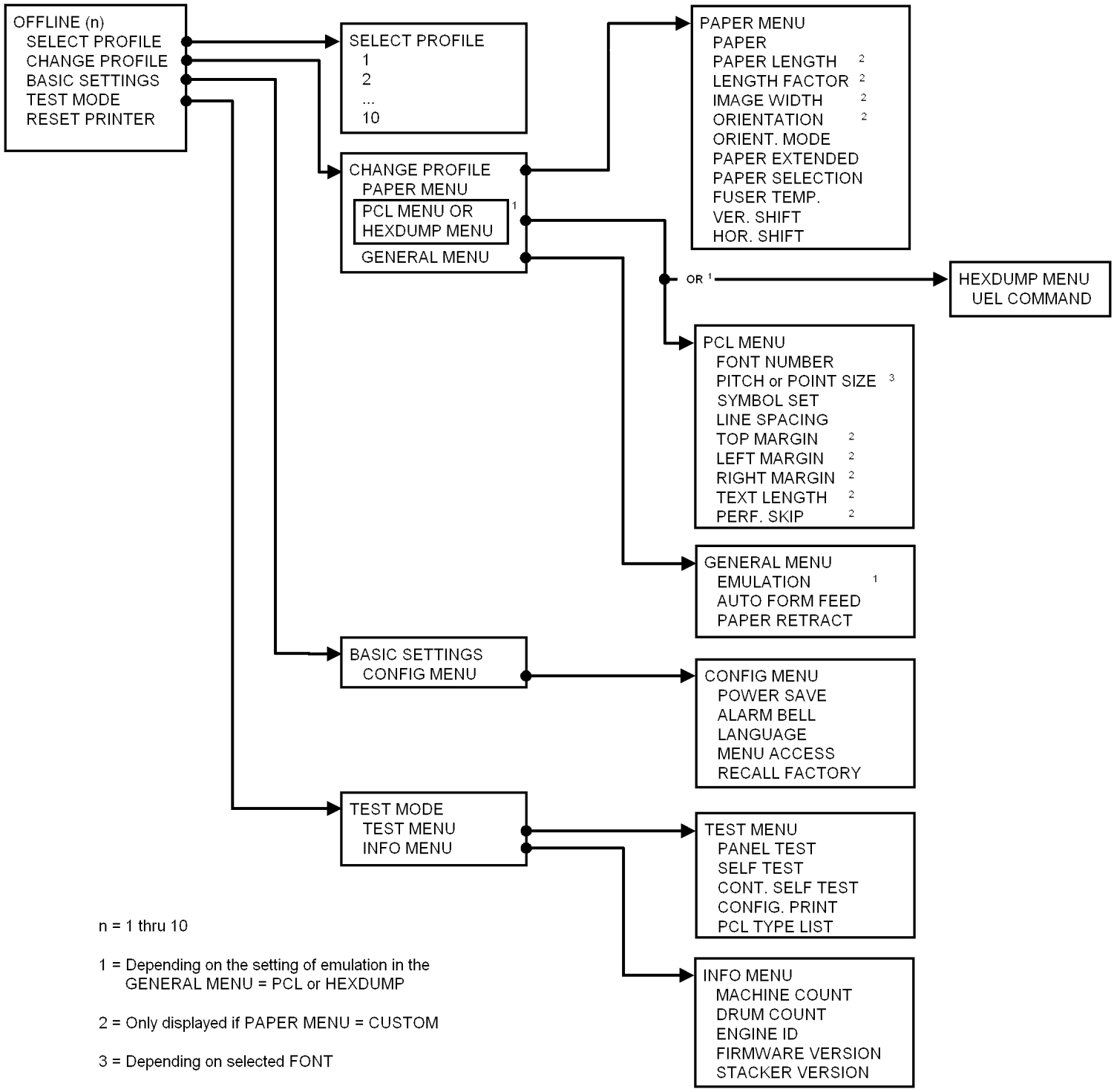
Note: The printer does not stop immediately after pressing a key. The prepared pages in the buffer will be printed before stop.

- **PCL TYPE LIST**

By activating the PCL TYPE LIST a printout of all available PCL Fonts is started, including information about the scalability and corresponding font number.

Note: The PCL TYPE LIST gives helpful information when programming different fonts and typefaces.

MENU



n = 1 thru 10

1 = Depending on the setting of emulation in the GENERAL MENU = PCL or HEXDUMP

2 = Only displayed if PAPER MENU = CUSTOM

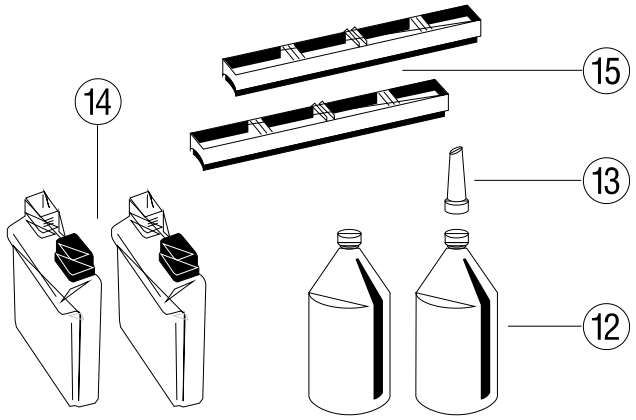
3 = Depending on selected FONT

4 Maintenance

4.1 Installing the Parts of the Toner Kit

A Toner Kit comprises:

- Two Toner bottles (12), 8,000 pages each
- One spout (13)
- Two Waste Toner Containers (14)
- Two Cleaner Felts (15)



Note: Save the box and all packing material of the Toner Kit!
Please, help to protect the environment and make use of the recycling program that is offered to you!
In the Toner Kit box there is a label which explains how to treat the used parts.

Filling in Toner

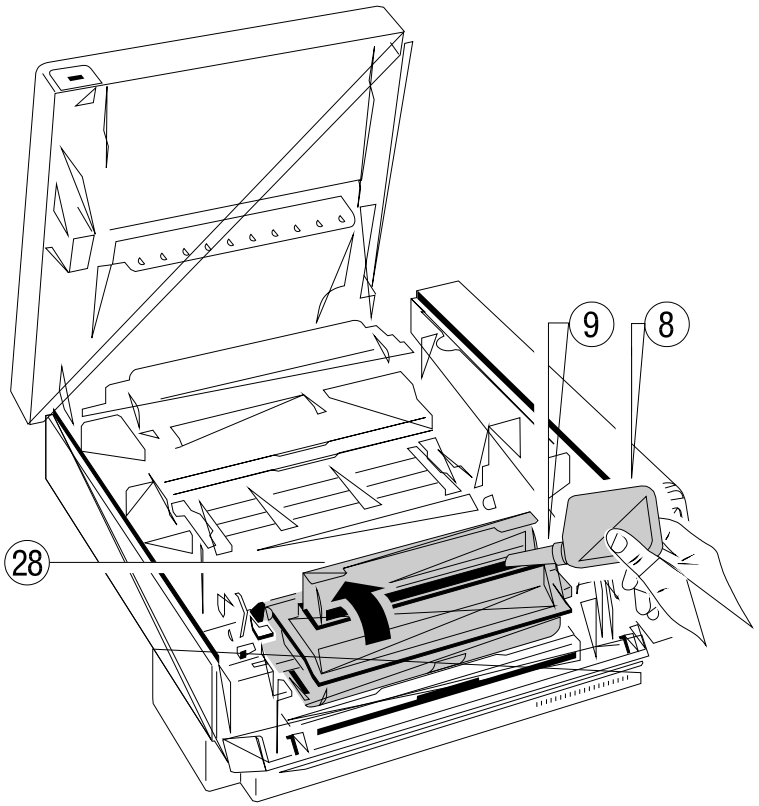
By the message "TONER EMPTY" in the display, the printer is indicating that toner has to be added to the developer.

Only toner that has been released for the printer must be used. This toner is part of the before mentioned Toner Kit

The toner will do for about 16,000 pages based upon a density of 5% per page.

Shake the bottle (12) several times to mix the toner well. Open the cover of the Developer Unit (28) to its upright position. Carefully open the seal underneath the cap of the toner bottle and attach the spout to the bottle. Spread the toner evenly across the opening of the Developer Unit.

Note: Do not squeeze the toner bottle since the toner could be blown out of the hopper and contaminate the printer. If the toner bottle is not completely empty, gently tap the end of the bottle while holding it upside down over the hopper.



Close the top cover of the Developer Unit (28). If you hear a "click" the shutter is completely closed.

Replacing the Waste Toner Container

In case the Waste Toner Container is already filled considerably, it is advised to replace it.

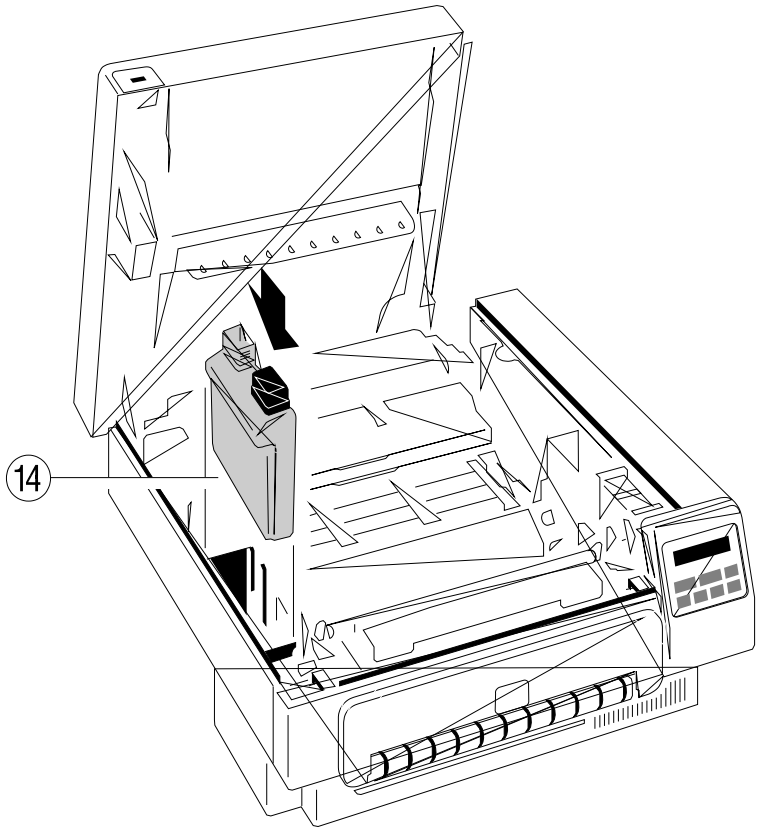
First lift the OPC Drum out of the printer and carefully set it aside on a clean surface.

Note: Do not touch the green part of the OPC Drum with your fingers. Oil and dirt will degrade print quality.

Do not expose the light-sensitive OPC Drum to room lighting or sunlight any longer than necessary.

Now, remove the old Waste Toner Container from its compartment which is close to the Developer Unit. Close the filling hole with the green cap. Take care that the cap fits tightly over the opening.

When shipped, two Waste Toner Containers (14) are in the box of the Toner Kit. Take one of them and put it into the compartment. Please observe that the green cap is placed on the cap holder and not over the filling hole.

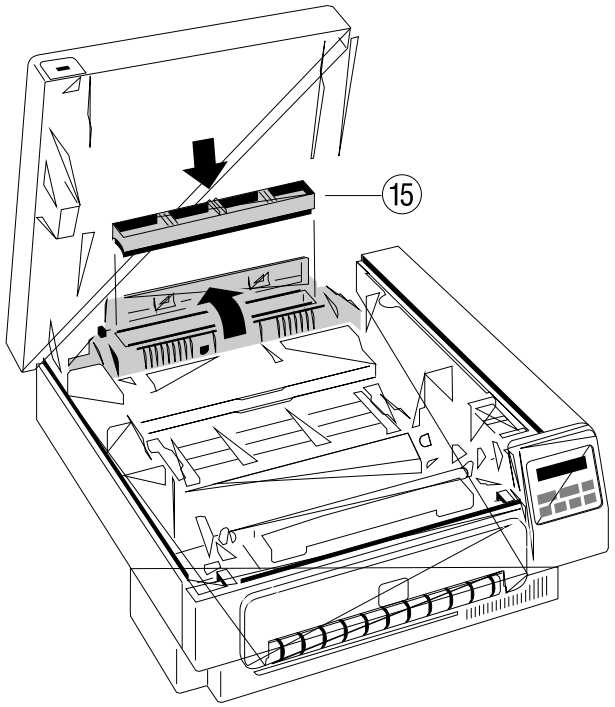


Carefully place the OPC Drum (11) back into the printer and by slightly pressing make sure that it is fully seated. The opening for toner waste is now just over Waste Toner Container (14).

Changing the Cleaner Felt

If toner is refilled you should also check the status of the Cleaner Felt. The Cleaner Felt is below the cover of the fuser unit at the rear of the printer.

If the Cleaner Felt is very dirty, you have to replace it. A new Cleaner Felt (15) is in the box of the Toner Kit. Insert it below the top cover of the Fuser Unit at the rear of the printer. After inserting the felt, the top cover does not lock completely. Don't worry about this, the printer top cover will provide the necessary pressure to keep the Cleaner Felt cover tight.

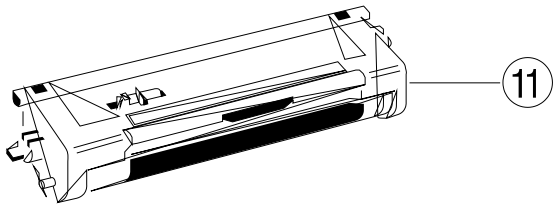


Note: Depending on the used paper type it may be necessary to change the Cleaner Felt more often.

4.2 Replacement of the OPC Drum

If the print quality gets worse or as a preventive measure after printing about 30,000 pages the OPC Drum (11) should be replaced. The display indicates this status by the message "EXCHANGE DRUM". This message is considered to being a warning. Although the user is free to continue printing, before every new print job, the message will be displayed again.

It is only allowed to use an OPC Drum that has been released for the printer..

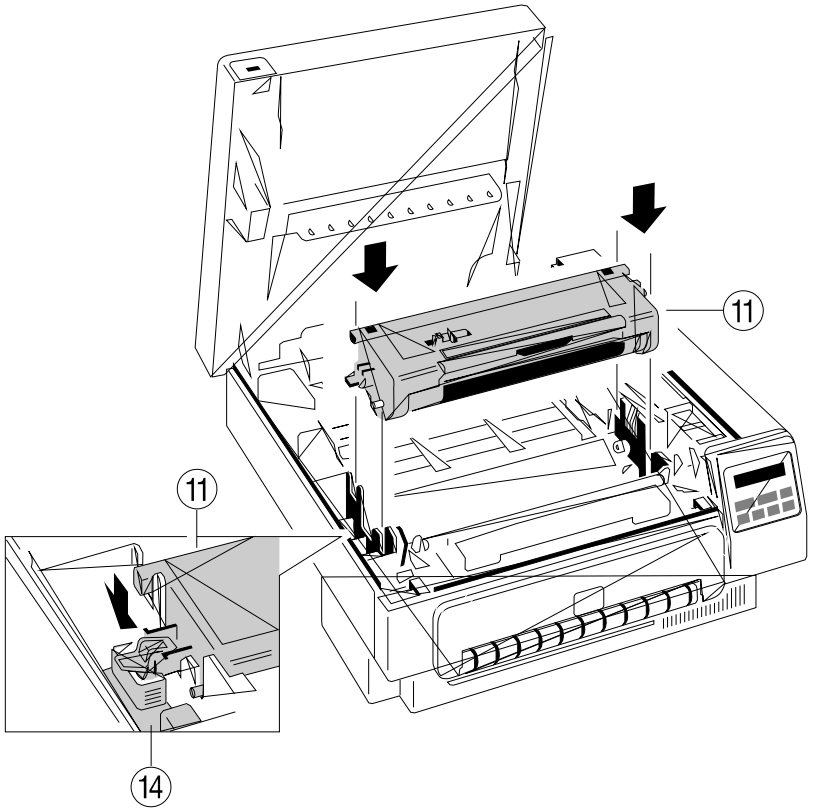


1. Open the top cover of the printer.
2. Remove the old OPC Drum carefully from the printer and set it aside on a clean surface.
3. Remove the paper from the printer.
4. Clean the inside of the printer with the cleaning pads which are in the box of the Cleaning Kit and pay special attention to the "Corona" wire below the OPC Drum. Clean it with the brush which is also in the box of the Cleaning Kit.

The OPC Drum is very light-sensitive, so it is wrapped up in lightproof foil. Carefully remove the drum from its foil container.

Note: Please do not touch the green part of the OPC Drum with your fingers. Oil and dirt degrade print quality.

Do not expose the light-sensitive OPC Drum to room lighting or sunlight any longer than necessary.



Insert the new OPC Drum into the printer behind the Developer Unit. Gently press the top of the OPC unit to make sure it is fully down. The opening for toner waste is now over the Waste Toner Container (14).

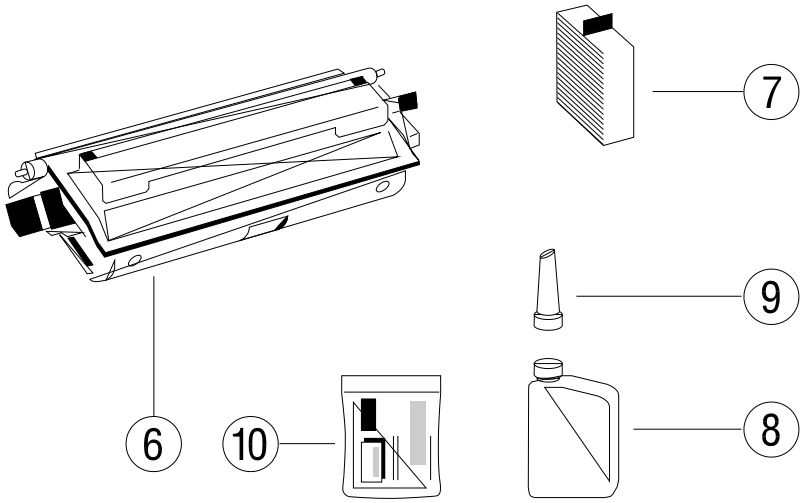
Note: Please contact your delivery agent for the recycling program of OPC Drums!

4.3 Replacement of the Developer Unit

To guarantee a good print quality you have to replace the Developer Unit after having printed about 100,000 pages.
You must only use a Developer Unit which has been released for the printer.

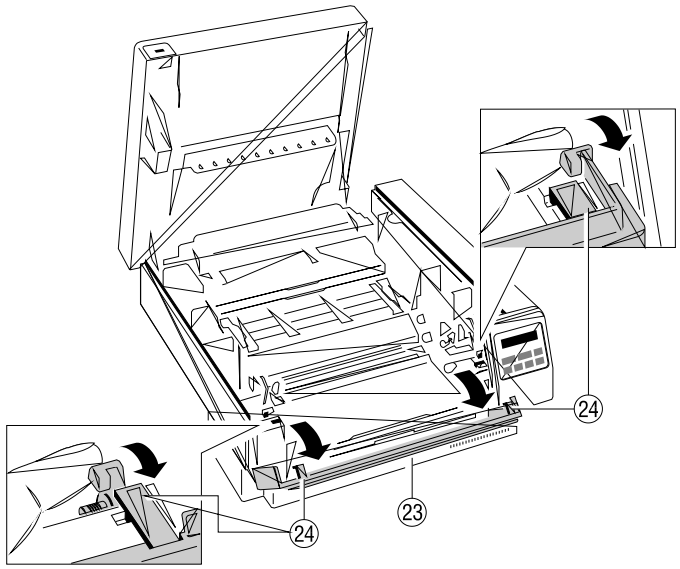
The Developer Unit is part of the "Developer Kit" which consists of:

- The Developer Unit (6)
- One Ozone Filter (7)
- One bottle with Starter Toner (8)
- One spout (9)
- One Cleaning Kit (10)

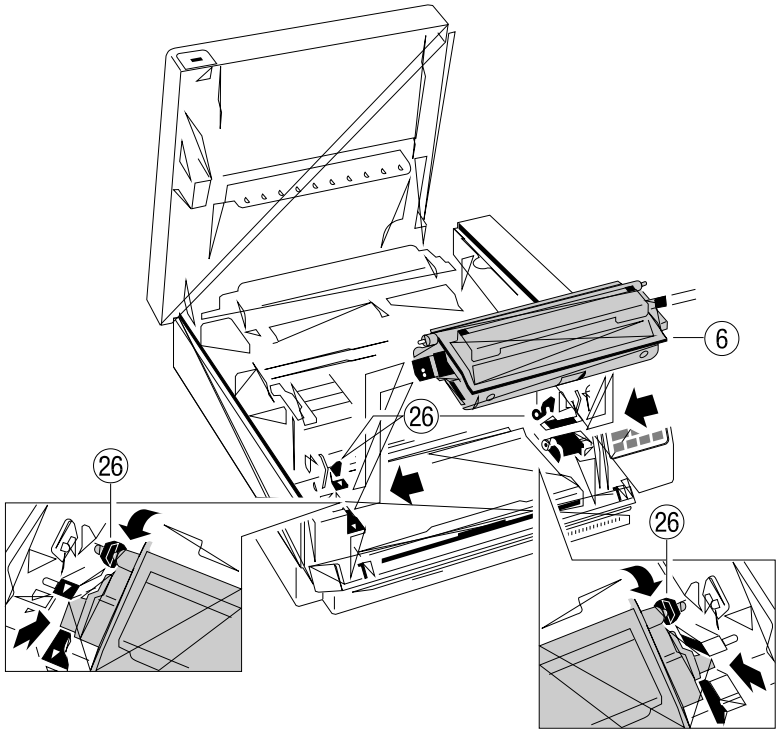


Gently lift the plastic tabs inside the printer, at the left and at the right side of the cover, and pull the front cover (23) in forward direction. The front cover will only open to a 45 degree angle. Please **do not** force this cover beyond a 45 degree angle.

Move the two green locking levers at the right and left of the Developer Unit to their upright position. Pull the Developer Unit out of the printer.



Slide the new Developer Unit fully into the printer along the plastic rails on the left and right. To lock push down the two green plastic levers.

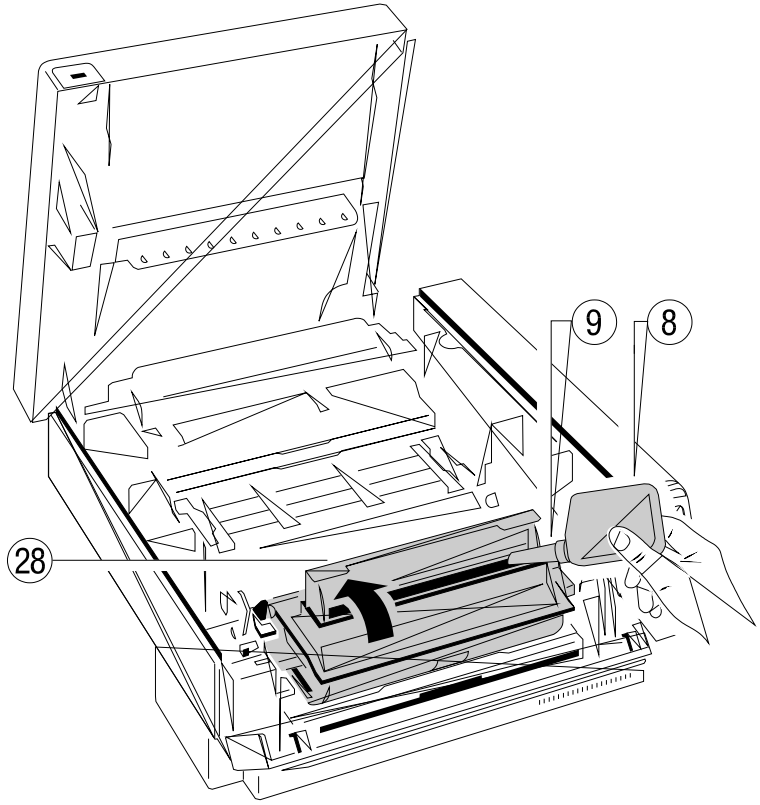


Filling in Starter Toner

Before using the Developer Unit for the first time, you have to fill it with Starter Toner. One bottle Starter Toner (8) with a spout (9) is in the box of the Developer Unit. Shake the bottle several times to mix the carrier and the toner. Carefully open the seal underneath the cap of the toner bottle and attach the spout to the bottle. Spread the toner evenly across the opening of the Developer Unit.

Note: Do not squeeze the toner bottle since the toner could be blown out of the hopper and contaminate the printer. If the toner bottle does not completely empty, gently tap the end of the bottle while holding it upside down over the hopper.

This first filling only allows Starter Toner to be used. Refilling any other toner is not allowed before the message "TONER EMPTY" appears on the display.

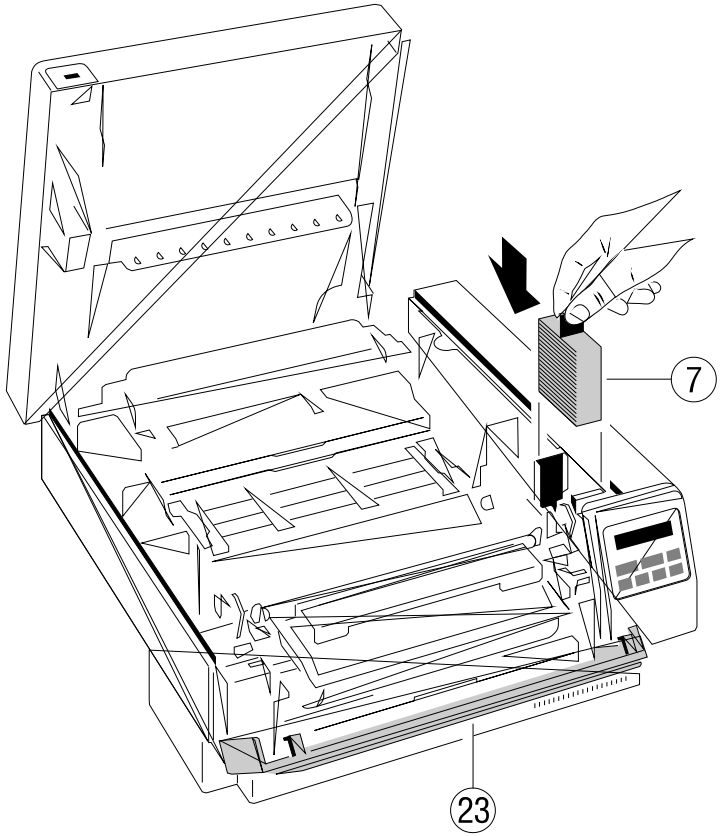


Close the top cover of the Developer Unit. If you hear a "click" the shutter is completely closed

.

Inserting the Ozone Filter

When replacing the Developer Unit you should also replace the Ozone Filter. The box of the Developer Unit also contains an Ozone Filter (7), a black rectangular block. At one of the short sides there is a small tab to hold the filter. Insert the Ozone Filter into the slot immediately behind the operator panel and besides the Developer Unit.



Firmly close the front cover (23).

Note: Please contact your delivery agent for the recycling program of Developer Units.

4.4 Replacement of the Fuser Unit

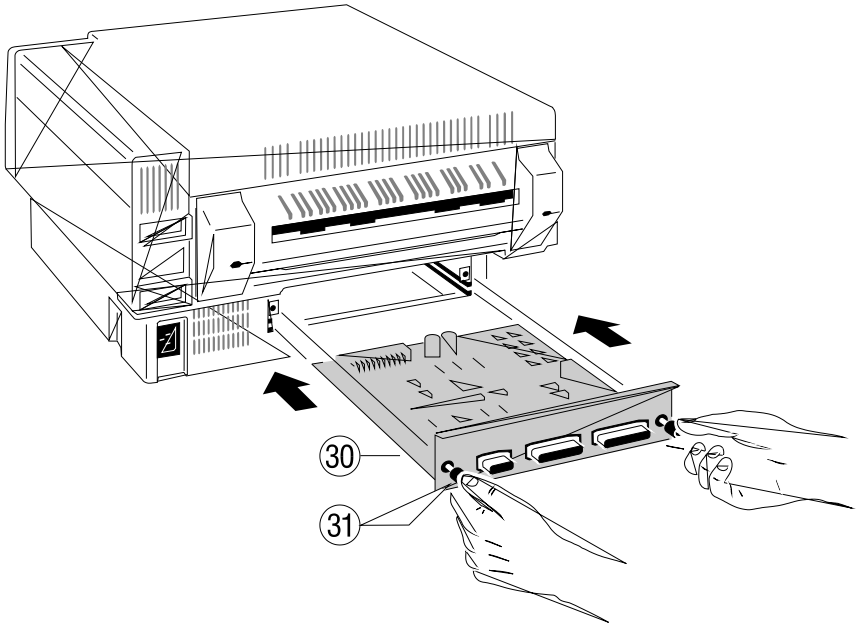
The Fuser Unit has a lifetime of approximately 300,000 pages.
To check the lifetime of the Fuser Unit the page count should be written to a log manual every time a Fuser Unit has been changed.

Replacement of the Fuser Unit should only be performed by a Service Technician.

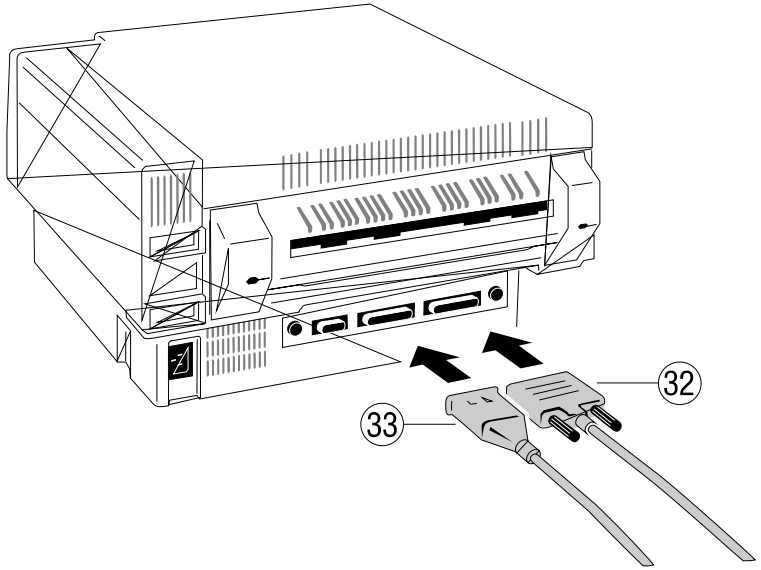
4.5 Exchanging the Control Unit

When shipped, the Control Unit (30) is already installed in the printer.

If your host system requires, it might be necessary to exchange the Control Unit (CU); this can easily be done:
The Control Unit is accessible at the rear of the printer. Loosen the two green lock screws and pull the Control Unit out of the printer. Insert the new Control Unit into the mounting rails until the connector fully engages. Hand tighten the two lock screws (31).



The picture below shows the optional version of the Control Unit which is equipped with a serial (33) and parallel (32) interface. For detailed information about your CU see Chapter 2.



Note:

- To avoid damage due to electrostatic discharge, do not touch the connector pins or components of the CU.
- Never attempt to install or remove a CU while the printer is switched ON.

5 Troubleshooting and Diagnostics

How to Use This Section

1. Find the category in which your problem occurs. The problem categories are:
   - Power-related Problems
   - Error Messages

2. Find the description that most closely matches the printer symptom.

3. Try the first suggestion under that heading.

4. If the suggestions above continue to keep you from printing, or if the fault is not listed, contact your service.

Every time the printer is switched ON an internal selftest is started.
The actual version of the "Bootstrap" software is displayed:

PC24 BOOTSTRAP
REVISION X.XX

After that the memory is tested:

MEMORY TEST
PLEASE WAIT...

If memory test is completed successfully the Operating System is started:

INITIAL TEST OK
STARTING PPOS...

After initialzation the printer enters the normal operation mode:

ONLINE

If an error message is displayed please refer to the following section.
All other messages are described in section 2.3 **Status and Error Messages**.

5.1 Power-related Problems

Display elements are not lit when power is switched On

- Check that the power cord and plug are securely fitted to the printer and to an electrical outlet. If the printer is equipped with the OTC Paper Stacker, the power for the stacker is supplied seperately. (See **chapter 6**)
- Ask for the power connector connections (and fuse, if fitted) to be verified.
- Ask for the building electrical supply to be verified.

5.2 Error Messages

After selftest, the printer enters the ONLINE mode.
In case of a failure following messages may be shown on the display:

OFFLINE
CHK TONER BOTTLE

The Waste Toner Bottle is not correctly mounted or missing.

Note: The waste toner level inside the bottle is not controlled. The user has to check the waste toner bottle every time when refilling new toner.

OFFLINE
NO DRUM

The OPC drum is not correctly mounted or missing.

OFFLINE
SERVICE FUSER N

The mechanics of the Fuser base is not working incorrectly. The parameter N gives more detailed information:

N = 0 Malfunction when opening or closing the fuser rollers.
N = 1 Malfunction when opening or closing the fuser rollers.
N = 2 Malfunction of sensors at the speed control plate.

OFFLINE
SERVICE HEATER N

The heater of the fuser unit is not working correctly. The parameter N gives more detailed information:

N = 0 Indication of thermistor has a broken wire.
N = 1 Indication for thermistor is short or has an extraordinarily high temperature.
N = 2 Defect heating, warm up not completed within specified time.
N = 3 Defect heating, not keeping temperature during print.

OFFLINE
SERVICE LSU N

There is no correct function of the Laser Scanning Unit. The parameter N gives more detailed information:

N = 0 No laser beam detected.
N = 1 No locking signal of Pase Lock Circuit.
N = 2 Phase Lock Circuit lost syncronization.
N = 3 Malfunction of LSU motor control.

OFFLINE
SERVICE EEPROM

Check sum error of EEPROM.

OFFLINE
SERVICE VSYNC

Error in synchronization of paper transport system.

ONLINE
ENGINE LIFE

This message indicates that the engine has printed 3.000.000 pages. This is the maximum page count for the engine. Please contact your service partner.
The printer has to be refurbished due to general wear out of the engine.

6. PrintCenter24 Floor Model Paper Stacker

6.1 Assembling the PrintCenter24 Stacker

6.1.1 Unpacking & Installation

You will need a utility knife for unpacking the container and a small, flat-blade screwdriver to fasten cable connectors.

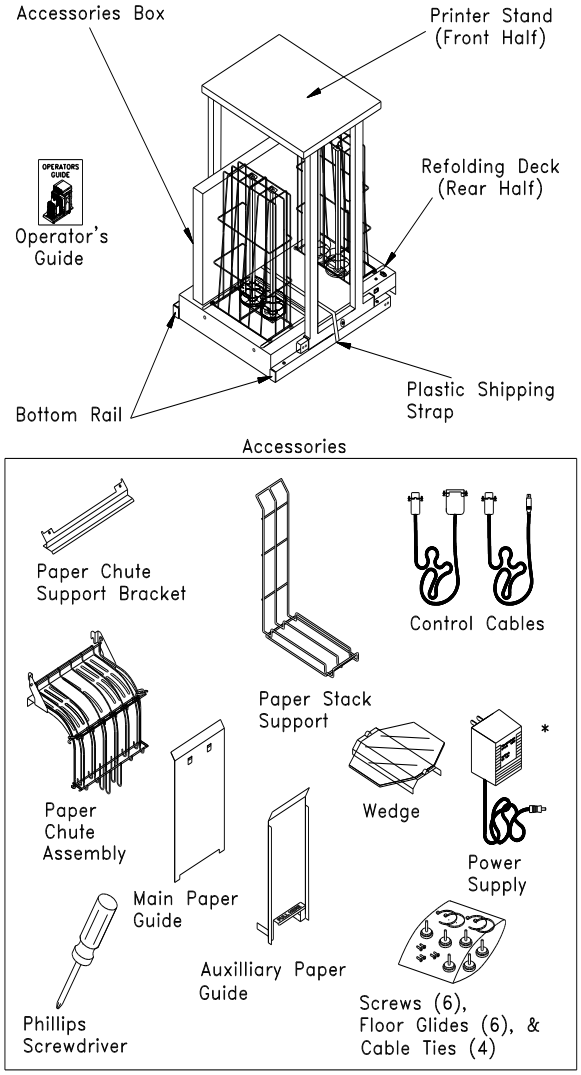
1. Inspect shipping container for damage. Report damage to carrier immediately.
2. Stand shipping container upright.
3. Use a utility knife to remove one side of the container.
4. See Caution below, then move contents to installation site.

! CAUTION !

If you use a lift truck, only lift along bottom rails of the stacker. Do not use a lift truck after plastic strap has been removed.

---

5. Remove plastic stretch wrap.
6. Remove accessories box. Also, remove bubble package resting on refolding deck. Check contents of box and package against the following illustration.
7. Cut plastic strap holding cardboard pad to bottom of deck.
8. Use the screwdriver provided to remove two screws (with nylon washers) holding printer stand to refolding deck. Lift off stand and then re-install screws and washers to deck.
9. Lift refolding deck off cardboard pad. Save all packing materials.



See also section 6.4 Paper Motion Sensor.

Note: UL/CSA, 120 vac, plug-in power supply is shown here. A 230 vac, in-line power supply is available.

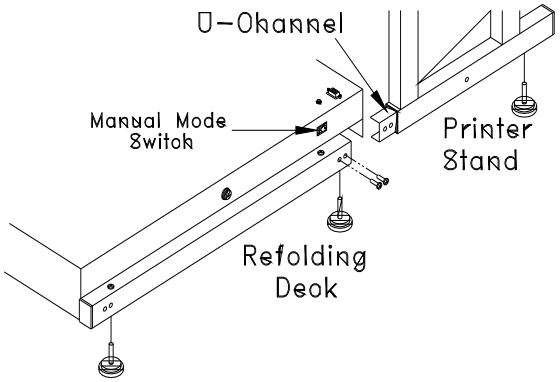
6.1.2 Assembly

1. Move refolding deck and printer stand onto a hard, flat surface.
2. Position U-channels of printer stand rails just opposite open rails of refolding deck, as shown in the next illustration.

Note: It is possible to install the deck backwards. Make sure you orient the deck, as shown in the illustration, so that the corner of the deck with the manual mode switch is located nearest the printer stand.

---

3. Insert channels of printer stand into rails of refolding deck so that two pairs of screw holes line up. (It may be necessary to temporarily loosen the four screws that secure the refolding deck to its rails.)
4. Secure the two halves of the stacker with the screwdriver and four, 3/8-in.-long Phillips screws provided in the accessory box.
5. If necessary, retighten screws to resecure deck to its rails.



LBO-D3

6. Tilt this assembly and screw in floor glides near the ends and middle of the rails. Adjust the glides so that the stacker is stable.

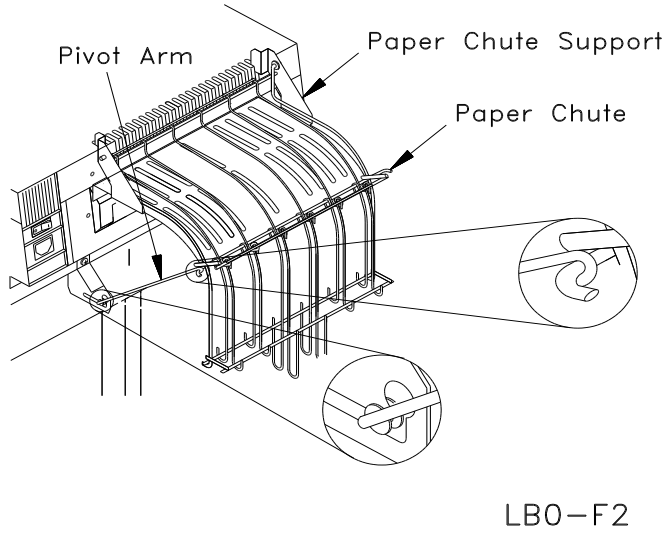
Note: An optional set of six casters can be used in place of the floor glides.

---

7. Place the stacker in position and then place the printer on the printer stand. Also, check to see that the front of the printer is parallel to the front edge of the stand.

The feet on the printer must rest in the indentations provided in the stand.

a. Pivot the paper chute slightly and then lift the free end of the pivot arm, which is attached to the paper chute, and insert it into slotted bracket on printer, as shown in the next illustration.



LBO-F2

b. Slowly open top cover of printer to check that this paper chute assembly is securely in place.

8. See Caution and Note below before installing control cable, as follows:

! CAUTION !

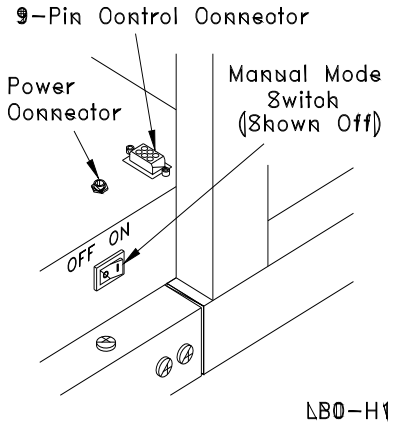
Your printer requires a paper motion sensor for automatic operation. See section 6.4

a. Connect the 9-pin end of the control cable to the D-shaped, 9-pin control connector on the refolding deck

b. Tighten screws on both connectors to secure cable.

c. Make sure manual mode switch on refolding deck is off, as shown in the illustration on Page 12.

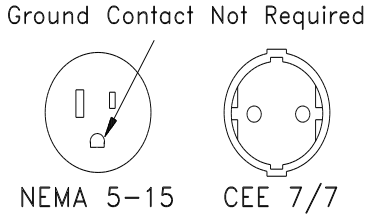
9.

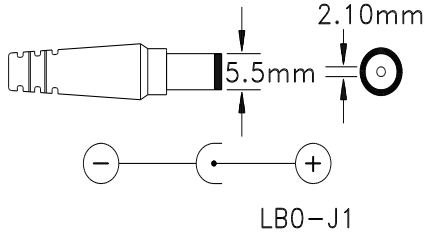


9. Insert connector on power supply cable into receptacle on refolding deck. Connect power supply to a suitable receptacle.

If your power source is other than 120 vac at 60Hz or

230 vac at 50Hz (or your receptacle is other than a NEMA 5-15 or a CEE 7/7, as shown in the following illustration), you will need to purchase a class 2, regulated 12 vdc, power supply. The power supply must be capable of supplying 12 vdc at a minimum of 800 ma to the stacker via the type of connector shown in the following illustration.





10. If desired, use supplied cable ties to fasten control and power cables to legs of stacker

11. Test manual mode by toggling the manual mode switch on the refolding deck.
Both pairs of refolding coils should turn.

12. Test automatic mode for a PrintCenter24 printer, as follows:
Turn on PrintCenter24 printer.

a.

Print a one-page print job.[1]

b.

When the PrintCenter24 printer begins to print it wi
the stacker. The stacker will stop when the PrintC
printer stops printing. If it doesn't start and stop
automatically, you may need to install a paper mot
sensor for automatic operation. See Parts & Acce
Page 26.

Slip the main paper guide onto the paper stack sup

13.

shown in the following illustration.

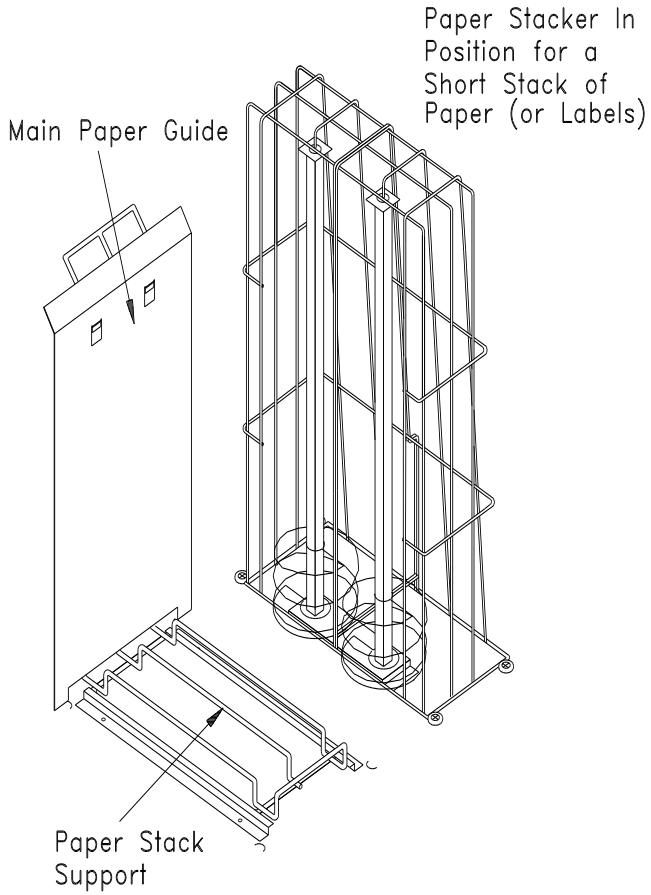
Slide this assembly, the paper stacker, between su

14.

channels on refolding deck.

***NOTE: The paper stacker assembly may be installed f
either right- or left-side access, whatever's convenien***

[1] For example, to print a summary page, be sure the printer is off line, then press the **MENU** key. After the printer displays "Print: Summary," press **STORE** to print.



LB0-K

6.2 Operating the PrintCenter24 Paper Stacker

1. Adjust position of paper stacker so that the face of the main paper guide is approximately at edge of paper.

2. Now slide refolding units so that indicator marks at bottom of units point to the proper perf-to-perf form length marked on the deck.
   The refolding units are mounted on a rack and pinion

   mechanism so that they move as a unit. When you adjust one, the other automatically adjusts to the same complementary position.

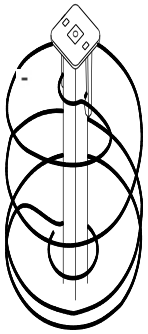
NOTE: The positioning of the refolding units is critical for fault-free performance.

---

3. Check that the four coils are at the bottom of their risers.

   The top caps of the risers contain two plastic barbs to capture the coils and suspend them so that you can easily remove the print job.

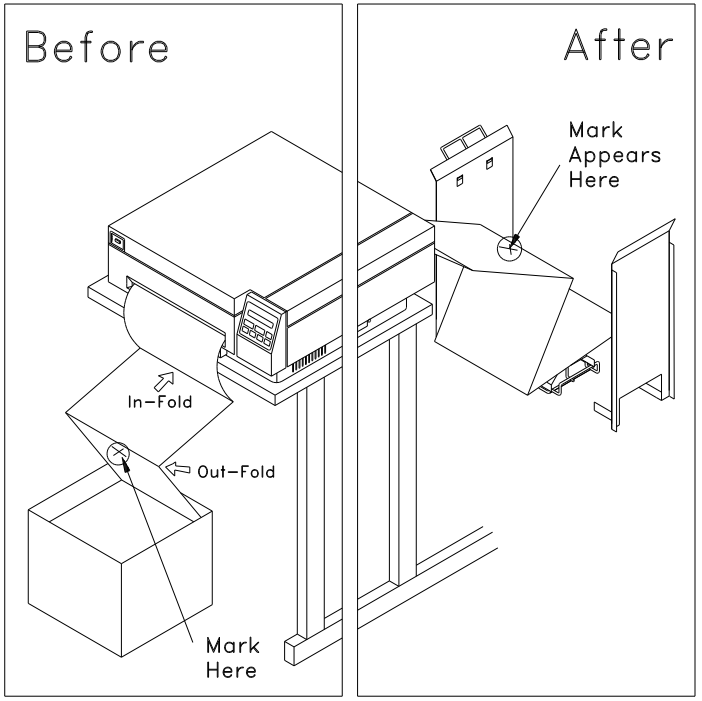
NOTE: The positioning of the refolding units is critical for fault-free performance.



LBO-N

4. Open bail of paper chute.

5. Make sure that the paper will stack on the stacker in the same way it is in the box. To do this, mark an "X" on one of the horizontal out-fold perfs at the paper entrance to the printer, as shown in the following "Before" illustration, and then use the printer's control panel to form feed that fold through the printer.



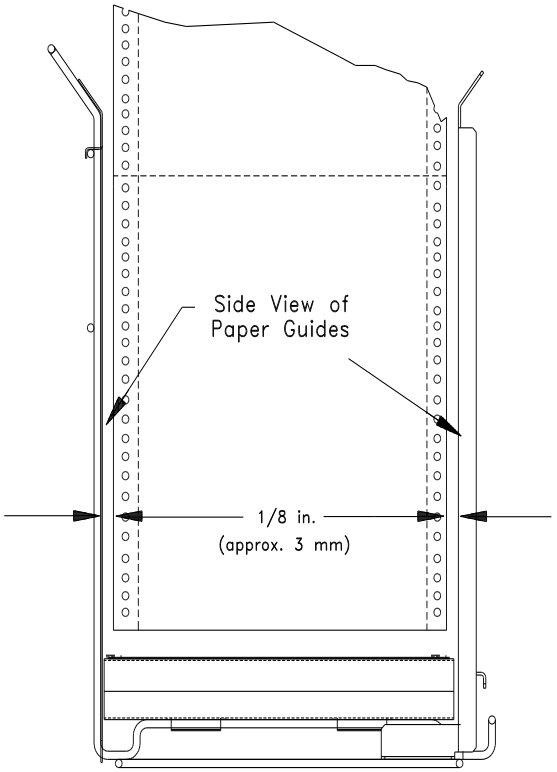
LBO-M1

6. At output of printer, make sure that paper feeds through paper chute and then close the bail.
7. Again, use the printer's control panel to advance the

   paper. Continue until out-fold perf with mark is at bottom of stacker.

8. Make sure the mark you made at the out-fold perf is not lapped over, as would be the case of an in-fold perf. (See the “After” illustration.)

9. Adjust paper stacker, if necessary, so that paper falls in a straight cascade from the paper chute to bottom of stacker.
The paper should be centered between the two pairs of coils. Stacking works best if the paper stack is started about 1/8 in. (approximately 3 mm) from the paper guide(s), as shown in the following illustration.



10. Begin printing.

11. If necessary, re-adjust paper stacker and/or refolding unit. The paper should not drag or hang up on sheet-metal paper guide(s), especially when you just begin a stack.

Note: Starting the stack 1/8 in. from the guides is important if you plan on a tall stack, and especially when using lower-quality paper. The perfs of some fanfolded paper are not always squared well with each other and so, as the stack grows, it may tend to lean a little. If this causes a problem, we recommend a different brand of paper[1].

12. When print job is done and you wish to retrieve your printing, advance the last printed page past the paper chute and then separate at the perf.
If you used the auxiliary paper guide, slide it out of the deck channels.
13. Lift the refolding coils to the tops of their risers.
14. Use the handles on the paper stack support to slide out and transport the print job.
Don’t use the flexible platform attached to the wedge of the paper stacker for carrying the print job. If you do, you might spill the paper stack. Use the built-in handles on the paper stack support.
15. After removing the stack of paper, don’t forget to release the coils so that they’re ready for the next job.
16.

[1] If stack-lean interferes with unattended performance, check for bad perforation alignment. To test for perforation misalignment, turn the box of paper around on the next print job and check if the stack tends to lean in the opposite direction. If it does, change brand names. We recommend our own brand of paper (Part No. LM1000C112) which is manufactured to exacting tolerances for consistent performance.

The PrintCenter24 Floor Model Stacker will hold more

than the tallest box of continuous form paper. If you happen to overfill the stacker with paper from more than one box, the coils will compress at the top of their risers. Although this won't harm the stacker, you may find it inconvenient when removing the print job. If you compress the coils to their limits, the rest of the print job will not stack properly.

6.3 Troubleshooting

The PrintCenter24 Floor Model Stacker is lubricated for life. Do not lubricate in any way.

6.3.1 When it doesn't run-

Check the power supply and control cable.

6.3.2 When Only one pair of coils turns-

One of the two motors has failed. Call one of the voice or fax phone numbers listed on the back of the title page of the PrintCenter24 Stacker Manual.

6.3.3 When it Doesn't Stack Right-

- Check that the paper falls in a straight line from the printer to the stacker. Make sure the paper stack support is directly below and centered with the paper chute.
- In general, the stack should be centered front-to-rear and side-to-side among the four coils.
- Check that the paper is not being refolded in the wrong way. It should stack on the stacker like it was in the box.
- Use a better grade paper.

6.4 Paper Motion Sensor

6.4.1 Installation

The paper motion sensor attaches to the underside of the paper chute support. To install —

1. Turn off printer. Also, make sure the refolding stacker is off.
2. If necessary, position the encoder wheel in the middle of its axle, as shown in Figure 1, and then snap the axle into place with paper motion sensor housing.

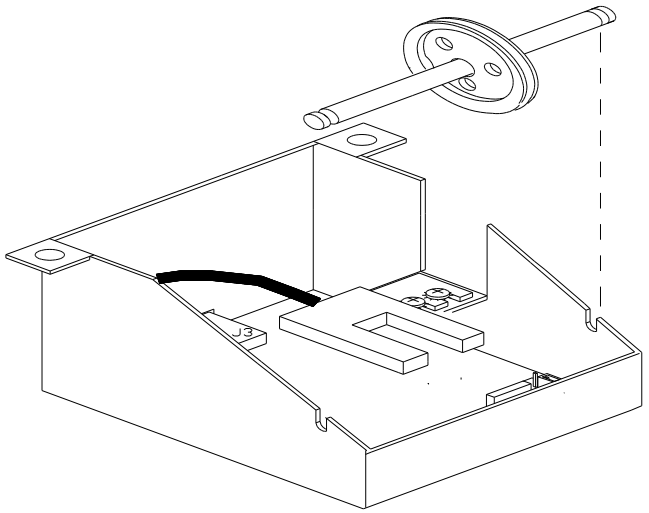
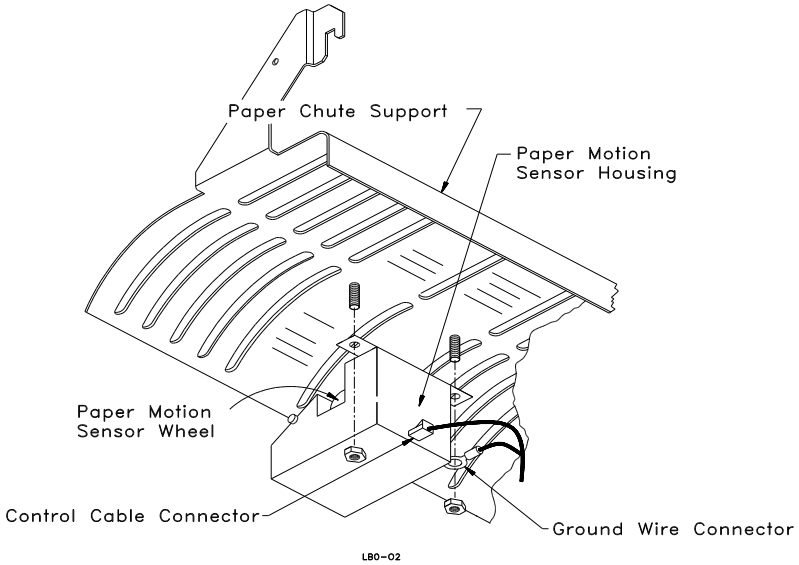


Figure 1. Paper Motion Sensor

3. Slip paper motion sensor housing over the two threaded studs on the underside of the paper chute support, as shown in Figure 2.
4. Loosely secure one side of housing with one of the nuts provided.
5. Place green ground wire connector on the other stud and loosely secure with nut.
6. Plug control cable connector into the paper motion sensor.

7. Make sure the sensor wheel rotates freely in the slot of the paper chute support, and then tighten nuts with wrench provided.
8. Connect the 9-pin end of the sensor cable to the D-shaped connector on the refolding deck and then secure the two Phillips head connector screws.
9. Test as follows.
   Turn stacker on and then off to ensure stacker is ready for operation. Make sure stacker is off and then turn on printer. Make sure the printer is on line and then send a print job, such as a PrintCenter24 summary page. (There's no need to turn on the refolding stacker because the paper motion sensor will do this for you.) Approximately 2 seconds after paper stops moving, the refolding stacker stops.

Figure 2. Paper Motion Sensor Installation



(Underside View of Paper Chute Support)

6.4.2 Cleaning the Sensor

The paper motion sensor uses an infrared light emitter and detector to sense the rotation of the encoder wheel. If dirt or paper dust clogs the holes in the wheel, or if the emitter or detector window of the sensor becomes obscured, the refolding stacker may fail to start when paper from the printer turns the encoder wheel.

To clean the paper motion sensor, proceed as follows:

1. Turn off power to the refolding stacker by unplugging its power supply.
2. Remove the housing of the paper motion sensor from the bottom of the paper chute. See Figure 2.
3. Remove the encoder wheel by lifting its axle from the cradle slots in the housing. See Figure 3.
4. Check and, if necessary, clean out the holes in the wheel.
5. Use 90% isopropyl alcohol (or a diskette/recording head cleaner) and a lint-free swab or cloth to clean the sensor's emitter and detector windows which are located near the inside tips of the U-shaped sensor.
6. Re-position the encoder wheel on its axle and then snap the axle into place on the housing. Make sure the wheel is between the two tips of the optical sensor.
   Note: Only the wheel turns. The axle doesn't.
7. Resecure the paper motion housing to the underside of the paper chute and then test its operation with the refolding stacker.

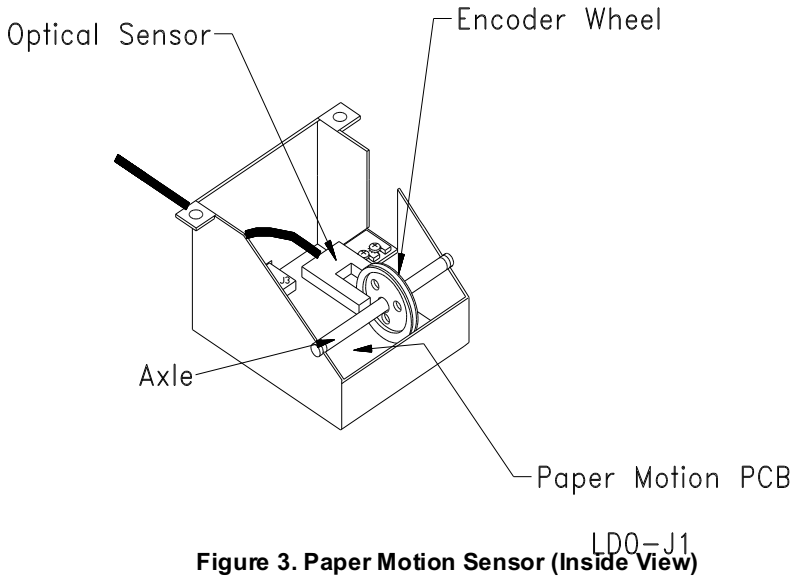


Figure 3. Paper Motion Sensor (Inside View)

6.4.3 Sensitivity Adjustment

The paper motion sensor is set at the factory so that, when the encoder wheel rotates, the sensor will turn on the refolding stacker.

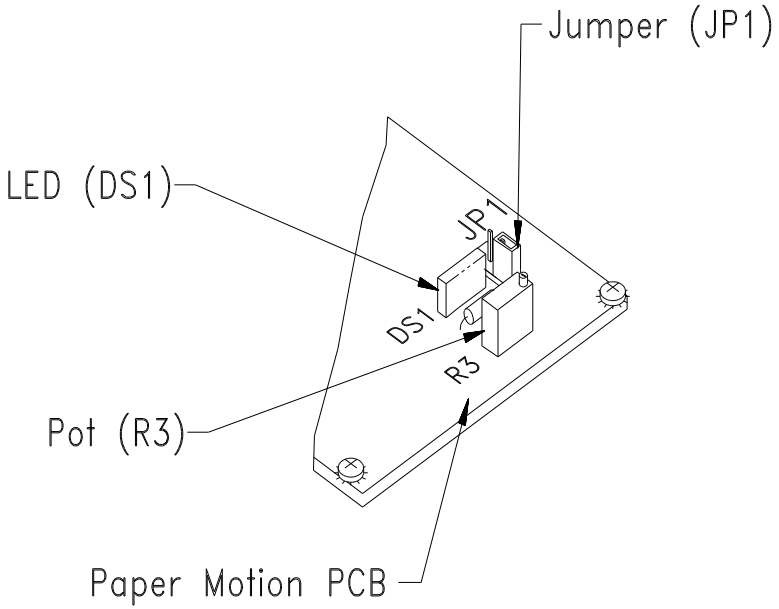
If the paper motion sensor fails to turn on the stacker, try cleaning the encoder wheel and sensor windows, as described in the preceding paragraphs. If necessary, adjust the sensitivity of the optical sensor, as follows:.

1. Make sure that the —
   - Paper motor sensor cable is interconnected between the sensor housing and refolding stacker,
   - Refolding stacker is connected to its power source, and
   - The override switch on the refolding deck is switched off so that the coils don't rotate.
2. Detach the paper motion sensor unit from the bottom of the paper chute. See Figure 2.

3. Remove the jumper connected to one pin of JP1 on the paper motion PCB. See Figure 4.
4. Install the jumper across both JP1 pins.

Figure 4. Paper Motion Sensitivity Adjustment

5. Remove the encoder wheel so that no obstruction blocks the gap between the halves of the optical sensor.



6. Use a very small, flat-tipped screwdriver to adjust potentiometer R3 on the paper motion PCB:
   - If the LED (DS1) is illuminated, turn the R3 adjustment clockwise until the LED extinguishes. Slowly turn the R3

adjustment counter-clockwise until DS1 just illuminates.

- If the LED (DS1) is extinguished, turn the R3 adjustment slowly counter-clockwise until DS1 just illuminates.

7. Remove the jumper and re-install it on either one of the JP1 pins.
8. Re-install the encoder wheel into the sensor assembly.
9. Re-install the unit to the paper chute.

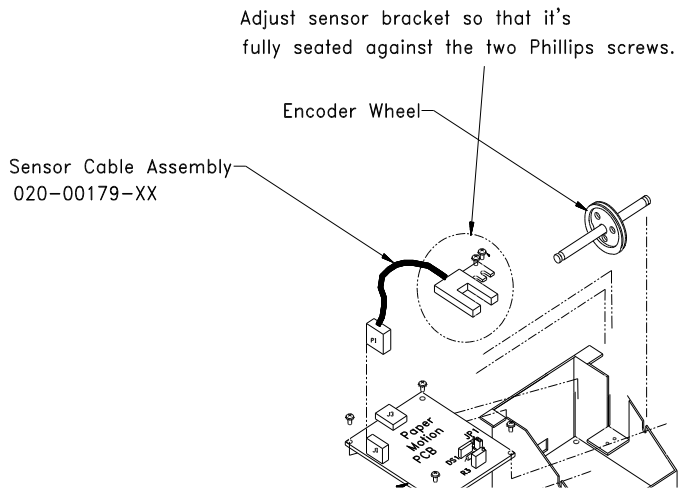
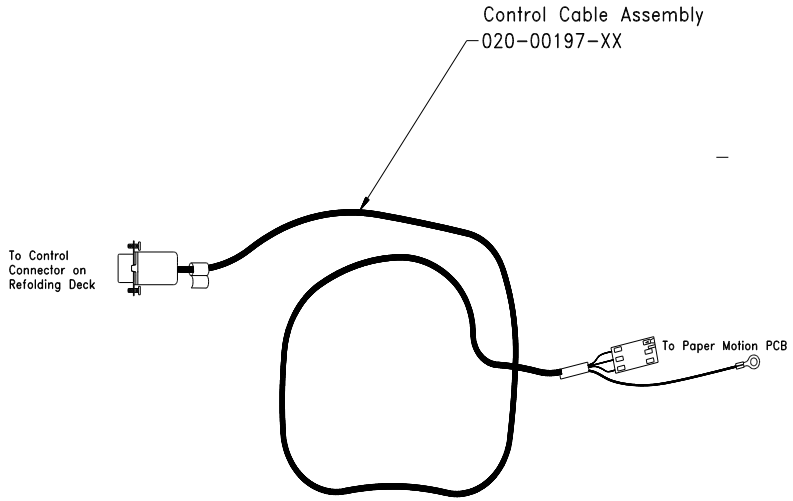


Figure 5a. Paper Motion Sensor (Illustrated Parts Breakdown)

6.4.5 Replacement Parts

To order a field replaceable part, proceed as follows:

1. Find the appropriate part number on Figures 5a and 5b.



LD0-AA

Figure 5b. Control Cable Assembly

(020-00197-XX)

2. Obtain the serial number of your stacker (along rim of refolding deck).

3. If applicable, have your Visa or MasterCard number and expiration date ready, and then contact Output Technology Corporation by phone, fax, or mail:

3808 N.Sullivan Rd. Bldg#3
Spokane, WA 99216
Phone: (509) 536-0468
Fax: (509) 533-1280

7. Technical Data

The technical data specified in this chapter are applicable to a printer equipped with a control unit that supports the serial and parallel interface.

7.1 Printer Specification

Print Technology
- Electrophotographic with diode laser
- Organic photoconductor (OPC) drum
- 1 1/2 component toner/developer system
- Heat and pressure fusing with adjustable fusing temperature

Paper Transport
- Plain, straight-through paper path
- Adjustable, retractable tractor with auto-centering
- Paper top-edge detection
- No forms waste if last printed page is not torn off

Print Image Area
Max. width 8.25 inch (210 mm)
Min. length 3 inch (76.2 mm)
Max. length 33 inch (838.2 mm)

Resolution
300 x 300 dpi

Process Speed
4.4 inch/s (112.23 mm/s)

Print Speed
24 pages per minute (ppm) at 11 inch page length

Warm-up Time / Beginning to Print
≤ 3 min from ambient temperature
After ≤ 20 s at operating temperature
After ≤ 30 s from stand-by

Fuser Control Modes
- Operating: The printer keeps the fuser at fusing temperature which is in the range of 165°C to 185°C.
- Stand-by: The printer keeps the fuser at stand-by temperature, at approx. 165°C.
- Idle: The printer lets the fuser cool to almost ambient temperature by turning the fuser off.

Dimensions
460 mm x 248 mm x 498 mm (W x H x D)

Weight
25.5 kg incl. consumables
22.0 kg no consumables

Mains Voltage
220 - 240 V AC, 50 Hz

Power Dissipation
- Operating: < 1.000 W
- Stand-by: < 300 W
- Idle: ≤ 40 W

Environmental Conditions
- Operating: 10 to 32.5°C, 20 to 80% rel. humidity
- Storage: -30 to 60°C, 10 to 95% rel. humidity

Noise Level
(Based upon ISO 7779 at the bystander position)
- Operating: ≤ 53 dB(A)
- Stand-by: ≤ 47 dB(A)

Duty Cycle / Reliability

- Duty cucle: up to 50,000 pages per month
- Lifetime: 3,000,000 pages
- MPBF: 300,000 pages (depends on usage)
- MTTR: < 45 min

Approvals

- TÜV/GS EN 60950, EN 60825
- CE EN 55022 Class B, EN 50082-1

7.2 Paper Specification

- Type: Continuous form fanfold or roll media with 0.5 inch tractor feed pin holes
- Weight: 56 g/m^2 - 90 g/m^2
  optimal 68 g/m^2 - 75 g/m^2
- Caliper: 0.08 - 0.2 µm
- Smoothness: 100 - 180 Sheffield or 20 -Bekk
  100 - 250 Sheffield for labels
- Width: Min. 4 inch (101.6 mm) edge to edge,
  3.5 inch (88.9 mm) pin to pin

  Max. 10 inch (254 mm) edge to edge,
  9.5 inch (241.3 mm) pin to pin
- Form Length: Min. 3 inch (76.2 mm)
  Max. 33 inch (838.2 mm)
  in increments of 1/6 or 1/8 inch
- Shelf Life: 1 year at min. 22°C and 50% rel. humidity

7.3 Connectivity

Interfaces

- IEEE 1284 Type B parallel
- Connector to OTC Stacker System
- Further interfaces with optional Control Units:
  - Centronics parallel with IGP emulation
  - Serial RS-232/V24 with IGP emulation
  - Ethernet 10Base2 and 10BaseT

Processor

AMD 29240 32 Bit RISC Processor

Buffer

8 MB standard, optionally expandable

Emulations/ Page Description Languages

- HP LaserJet 4 (PCL 5e)
- HP-GL/2
- IGP 10-20-40 with optinal Control Unit

Fonts

- 45 scalable fonts
- 6 bitmap fonts with fix pitch 16.67 CPI
- OCR-A and OCR-B
- 2 Barcode fonts Code 39

Barcode

- Code 39
- 2 of 5 industrial
- 2 of 5 interleave
- EAN 8 and EAN 13
- UPC-A and UPC-E
- Codabar
- MSI
- Code 93
- Postnet
- Code 128

7.4 Consumables

Toner Kit 16.000 pages at 5% density

Contains two of each:

- Bottle Toner
- Waste Toner Container
- Cleaner Felts

OPC Kit 30,000 pages

- OPC drum

Developer Kit 100,000 pages

Contains

- One Developer Unit
- One Ozone Filter
- One bottle Starter Toner (200g Toner, 40g Carrier)
- One Cleaning Kit

Fuser Unit 300,000 pages

The Fuser Unit should be exchanged by a Service Technician.

Note: The previously mentioned number of pages is based upon xerographic quality paper with 9.5 inch x 11 inch size and 75 g/m^2 paper weight.

Storage of consumables is possible for 18 months from date of manufacture. For shipping or storage of consumables the following environmental conditions have to be met:

-10°C to 40°C

10% to 90% rel. humidity.

7.5 Specification of the OTC Floor Model Stacker

Width

20 in. (approx. 508 mm)

Length

37 in. (approx. 940 mm)

Height

30 in. (approx. 762 mm)

Shipping Dimensions

22 x 26 x 33 in. (Approx. 560 x 660 x 840 mm)

Shipping Weight

43 lb (approx. 25 kg)

Power Supply

12 vdc at 800 ma. One of two power supplies is shipped with the stacker: either a UL/CSA, 120 vac, 60Hz, plug-in power supply, or a 230 vac, 50Hz, in-line power supply with a TÜV power cord

Power Consumption

Not more than 10 w

7.6 Paper/Label Requirements for the OTC Floor Model Stacker

Paper Type
Fanfold, single-part paper with a bond weight of 18 to 24 lb (65 to g/m^2) and a caliper thickness of 3.2 to 4.5 mil (0.081 to 0.0114 mm.) Prefer 24 lb paper without laser (clear perf) perforations.

Label Type
Fanfold labels with a caliper (thickness) not to exceed 7.5 mil (0.190 mm)

Sheet Lengths
Variable from 6 to 14 in (approx. 152 to 355 mm), perf to perf

Sheet Widths
Variable from 4 to 10 in (approx. 101 to 254 mm) including ½ in. tractor strips

Stack Limit
Up to 15 in. (approx. 380 mm) in height or about 2000 sheets of 24 lb bond paper

Appendix A Programming Guide

The printer matches the Hewlett-Packard ® Company's LaserJet 4 Plus printer. In addition it includes some features not available with the LaserJet 4 printer.
Please note, that some PJL features are not supported by the printer.

– Support for additional paper sizes
  To make use of arbitrary paper sizes of fanfold paper the printer supports the paper format CUSTOM. This enables the user to define PAGELENGTH and IMAGE WIDTH separately by means of PJL sequences.
  The paper format CUSTOM can be selected by a PCL5 or PJL sequence.

– Additional Printer Job Language (PJL) commands
  In order to set PAGELENGTH and IMAGE WIDTH of fanfold paper, associated parameters have been added to the printer's environment to be selected by the SET and DEFAULT command in a PJL sequence.

– 20 different resident Barcodes
  A variety of barcodes can be selected by additional PCL sequences, to be printed in various sizes and orientations.

The features described below refer to the **Firmware Revision V1.20** of the printer.

Note: For more information regarding PCL5 and PJL programming please refer to the
- PCL5 Printer Language Technical Reference Manual (5961-0509)
- PJL Printer Job Language (5961-0704)

published by Hewlett-Packard ® Corporation.

Conventions

The following conventions are used in the command listings:

	Spaces may appear between characters in sequence for clarity; they are not part of the format. A Space character is indicated by the grafik symbol ␣ .
ESC	Escape (1/B), introduces an escape sequence
@	Introduce a PJL command
P1	Numeric parameter, or number of units that specify a distance or quantity pertaining to the escape sequence, control function or control string. Accepted values are 0...9999. If the parameter is in normal notation like "200" the programming in hex-code is according to a ASCII table. ("200" = 32,30,30 in hex).
␣	Grafik symbol used for Space (hex 20)
<CR>	Carriage Return
<LF>	Line Feed

1 PCL5 Extensions for Paper Size Selection

Escape Sequence	Function	Parameter	
ESC & *l* P1 A 1B 26 6C P1 41	Page Size	P1 = 2 P1 = 26 P1 = 101	Letter A4 Custom

2 PJL Extensions

2.1 Basic Rules for PJL Programming

– To change from PCL to PJL, enter the Universal Exit Language (UEL) Command:

  ESC % - 12345 X

– Change the Current (SET) or User Default (DEFAULT) Environment:

  @ PJL ␣ SET ␣ [option name] ␣ = ␣ [value] <CR> <LF>

  @ PJL ␣ DEFAULT ␣ [option name] ␣ = ␣ [value] <CR> <LF>

– Go back to PCL or any other Emulation:

  @ PJL ␣ ENTER ␣ LANGUAGE ␣ = ␣ [personality] <CR> <LF>

  Supported [personalities] are : PCL, HEXDUMP or ELQ

  Note: ELQ is an optional emulation not supported in standard printers

Sample
Set page length in the current environment to 11 ⅓ inch and the image width to 7.15 inch at the beginning of a new PCL print job:

ESC % - 12345 X @ PJL ␣ SET ␣ PAPER ␣ =␣ CUSTOM <CR> <LF>
@ PJL ␣ SET ␣ PAGELENGTH ␣ = ␣ 11 ␣ 1/3 <CR> <LF>
@ PJL ␣ SET ␣ IMAGEWIDTH ␣ = ␣ 7 **.** 15 <CR> <LF>
@ PJL ␣ ENTER ␣ LANGUAGE ␣ = ␣PCL <CR> <LF>

Note: After entering the PCL mode the new print job should start with the PCL RESET command ESC E.

Note: For more information refer to the following documentation:

  - PJL Printer Job Language (5961-0704)

  published by Hewlett-Packard ® Corporation.

2.2 Supported Parameters in SET and DEFAULT Statements

option name	value
PAPER	A4, LETTER, or CUSTOM
ORIENTATION	PORTRAIT, LANDSCAPE
PAGELENGTH	3...20 INCH; in steps of $^1/_4$ or $^1/_6$ inch
IMAGEWIDTH	0.5...16 INCH; in steps of 0.05 inch

Note: A list of the supported PJL and PCL commands is added at the end of this chapter on page A-19

3 Barcode Programming

The printer offers a large set of resident Barcodes as a standard feature by means of additional PCL 5 control sequences.

Generally barcodes are programmed in three steps:

1. Select a barcode type and define the barcode specific parameter set of
   - Height
   - Module width
   - Ratio of bars to spaces
   - Text control
2. Define barcode print position and print orientation
3. Print the barcode by sending the barcode data command

Note: For every barcode an individual set of parameters (height, module width, ratio, text control) is stored. The default values (see page A-11) of these parameters are activated with the first selection of a barcode type.
Programming a new parameter modifies only the value of the actual selected barcode type. The value is applied until it is overwritten by a new value or the printer is switched off. (Barcode parameters are not stored in the printer environment !)

Programming

Programming of the resident barcodes is achieved with 6 new control sequences added to the PCL5 emulation.
The print position and print orientation of a barcode is controlled by standard PCL5 commands.

- **Barcode print position**
  Printing of any barcode starts at the current actual cursor position. The position can be set with any standard PCL5 cursor movement command. Moving the cursor with printed characters, spaces and carriage return and line feed is the simplest possibility.
  Setting the cursor to an absolute or relative position in PCL units is the best way to position a barcode:

ESC * p P1 X	Absolute horizontal position to P1
ESC * p + P1 X	Relative horizontal position P1 to the left
ESC * p - P1 X	Relative horizontal position P1 to the right
ESC * p P1 Y	Absolute vertical position to P1
ESC * p + P1 Y	Relative vertical position P1 down
ESC * p - P1 Y	Relative vertical position P1 up

Note: - The barcode **REFERENCE POSITION** is the left upper edge except for Postnet where the reference position is the character baseline.

- The **cursor position is not changed** after printing the barcode. The cursor must be set to a new position for the next printable character.

- One PCL unit is the unit of measure for cursor movements. The default value is 300 units per inch.

- **Barcode print orientation**
  Barcodes are printable in all four print directions, selectable with the following PCL5 command:

ESC & a P1 P P1 = 0, 90, 180, 270 default = 0˚

- **Barcode type**
  This command selects a barcode type:

ESC * z P1 V default = 0

P1 = 0	Code 39
P1 = 1	2 of 5 industrial
P1 = 2	reserved
P1 = 3	reserved
P1 = 4	2 of 5 interleaved
P1 = 102	EAN 8 SC2
P1 = 106	EAN 8 SC6
P1 = 109	EAN 8 SC9
P1 = 122	EAN 13 SC2
P1 = 126	EAN 13 SC6
P1 = 129	EAN 13 SC9
P1 = 142	UPC-A SC2
P1 = 146	UPC-A SC6
P1 = 149	UPC-A SC9
P1 = 162	UPC-E SC2
P1 = 166	UPC-E SC6
P1 = 169	UPC-E SC9
P1 = 180	Codabar
P1 = 181	MSI
P1 = 188	Code 93
P1 = 200	Postnet
P1 = 210	Code 128

Note: EAN and UPC code selection supports ADD2 and ADD5 extensions by sending those additional digits.

- **Barcode height**
  This command defines the height of the actual selected barcode:

  ESC * z P1 H P1 = height in PCL units

  For a every barcode type an individual value is stored. The default height value for barcode is 0.5 inch (P1 = 150) except EAN, UPC and Postnet.
  The default height for EAN and UPC is defined with the scaling factor SC 2, 6 or 9. The height of Postnet is fixed.
  Barcode height values are selectable in the range from 0.1 inch (P1 = 30) to 10 inch (P1 = 3000).

Note: One PCL unit is the PCL scaling unit. Default is 300 units per inch.

- **Barcode data**
  This command specifies the barcode data field. Two command formats are supported. The first format is conforming to earlier PCL3 commands and does not report the number of data bytes in front of the data field:

  ESC * z < ***data*** > Z ***data*** = barcode data field

  The barcode data are enclosed in the two brackets. If the right bracket itself is part of the data field it has to be sent twice.

  The second format is according to typical PCL5 commands. The number of bytes in the data field is indicated before sending the data:

  ESC * z P1 Z ***data*** P1 = number of bytes in the barcode field ***data***

  Note: The number of barcode data bytes must correspond to the selected barcode type, otherwise the command is ignored.

- **Barcode text control**
  This command controls the optional printing of barcode data as an added text string.

  ESC * z P1 Q

P1 = 0	disable text
P1 = 1	text above barcode with OCR-B font
P1 = 2	text below barcode with OCR-B font (default)
P1 = 3	text above barcode with actual selected font
P1 = 4	text below barcode with actual selected font

  The text string is centred to the printed barcode.

  Note: - For EAN code with OCR-B font the pitch is not 10 CPI.

  - For actual fonts the vertical distance between barcode and text is equal to the maximum bar width. The programmer has to ensure that the actual selected font is adequate to be printed in combination with the barcode.

- **Barcode module width**
  Horizontal scaling of the barcode is selectable by the module width. This parameter defines the width of the narrow bar in PCL units.

  ESC * z P1 S P1 = module width in PCL units

  Value range is from 1 to 32,767. The default values for the different barcode are described in the table on the next page.

  Note: For barcode types EAN and UPC the predefined values given with the scaling factor (see table) should not be modified.
  For Postnet the module width is fixed.

- **Barcode ratio**
  This command selects one of the available ratios between wide and narrow bars (spaces).

  ESC * z P1 O P1 = 2.0 ; 2.5 ; 3.0 ; default is 2.5

Note: This command is not applicable to all barcodes; refer to table below.

Default values for module width and ratio:

Barcode code No.	type	Module width default [1]	variable	Ratio default	variable
0	Code 39	6	yes	2.5	yes
1	2 of 5 industrial	6	yes	2.5	yes
4	2 of 5 interleaved	6	yes	2.5	yes
102	EAN 8 SC 2	4	yes	fixe	no
106	EAN 8 SC 6	6	yes	fixe	no
109	EAN 8 SC 9	8	yes	fixe	no
122	EAN 13 SC 2	4	yes	fixe	no
126	EAN 13 SC 6	6	yes	fixe	no
129	EAN 13 SC 9	8	yes	fixe	no
142	UPC - A SC 2	4	yes	fixe	no
146	UPC - A SC 6	6	yes	fixe	no
149	UPC - A SC 9	8	yes	fixe	no
162	UPC - E SC 2	4	yes	fixe	no
166	UPC - E SC 6	6	yes	fixe	no
169	UPC - E SC 9	8	yes	fixe	no
180	Codabar	6	yes	2.5	yes
181	MSI	6	yes	2.5	yes
188	Code 93	6	yes	fixe	no
200	Postnet	5	no	fixe	no
210	Code 128	6	yes	fixe	no

[1] in $^1/_{360}$ inch

*) for optimum readability module width should not be changed

- **Start and Stop characters**
  For barcode types EAN, UPC, Code 93, Code 128 and Postnet the printer automatically adds start and stop characters.
  For barcode type Code 39, 2 of 5 industrial and 2 of 5 interleaved the printer adds start and stop characters only if they are not generated by the system.
  For barcode type Codabar the application has to generate the start and stop characters.

  Following start and stop characters are accepted by the printer:

Barcode Type	Start Character	Stop Character
Code 39	*	*
2 of 5 types	:	;
Codabar	a, b, c, d, A, B, C, D	t, n, *, e, A, B, C, D

Note: Following combinations (start / stop) are specified for Codabar, but not checked by the printer:
(a / t) (b / n) © / *) (d / e) (A / A) (B / B) © / C) (D / D)

- **Error checking characters**
  Error checking characters are added by the printer only for barcode types Code 128, Code 93 and Postnet. For all other barcode types the application has to generate error checking characters and transmit them to the printer.

- **Unprinted areas**
  To ensure proper readability of a barcode unprinted areas in front and behind the barcode are required. The printer does not insert these areas itself; the amount of space has to be calculated by the application.

Barcode Programming Examples

- Example for Code 39

type	= Code 39:	ESC * z 0 V
Height	= 0.6 inch	ESC * z 180 H
text	= OCR-B above	ESC * z 1 Q
data	= CODE 39	ESC * z < CODE 39 > Z

The HEXDUMP datastream for this example is:

1B	2A	7A	30	56	1B	2A	7A	31	38	30	48	1B	2A	7A	31
51	1B	2A	7A	3C	43	4F	44	45	33	39	3E	5A			

Print sample:

- Example for 2 of 5 industrial

type	= 2 of 5 industrial:	ESC * z 1 V
Height	= 0.6 inch	ESC * z 180 H
mod. width	= 10 PCL units	ESC * z 10 S
text	= OFF	ESC * z 0 Q
data	= 1 2 3	ESC * z < 1 2 3 > Z

The HEXDUMP datastream for this example is:

1B	2A	7A	31	56	1B	2A	7A	31	38	30	48	1B	2A	7A	31
30	53	1B	2A	7A	30	51	1B	2A	7A	3C	31	32	33	3E	5A

Print sample:

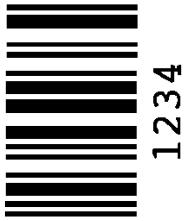
- Example for 2 of 5 interleaved

type	= 2 of 5 interleave:	ESC * z 4 V
position	= X=500; Y=500	ESC * p 5 0 0 x 5 0 0 Y
orientation	= 90˚	ESC & a 9 0 P
text	= actual font below	ESC * z 4 Q
data	= 1 2 3 4	ESC * z < 1 2 3 4 > Z

The HEXDUMP datastream for this example is:

1B	2A	7A	34	56	1B	2A	70	35	30	30	78	35	30	30	59
1B	26	61	39	30	50	1B	2A	7A	34	51	1B	2A	7A	3C	31
32	33	34	3E	5A											

Print sample:



- Example for EAN 8 SC2

type	=EAN 8 SC2:	ESC * z 1 0 2 V
orientation	= 270˚	ESC & a 2 7 0 P
text	= OCR-B below	ESC * z 2 Q
data	= 4 0 1 2 3 4 5 5	ESC * z 8 Z 4 0 1 2 3 4 5 5

The HEXDUMP datastream for this example is:

1B	2A	7A	31	30	32	56	1B	26	61	32	37	30	50	1B	2A
7A	32	51	1B	2A	7A	38	5A	34	30	31	32	33	34	35	35

Print sample:

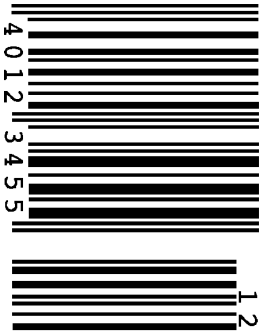
- Example for EAN 8 SC6 add 2

type	=EAN 8 SC6	ESC * z 1 0 6 V
orientation	= 270˚	ESC & a 2 7 0 P
text	= actual font below	ESC * z 4 Q
data	= 4 0 1 2 3 4 5 5 1 2	ESC * z 1 0 Z 4 0 1 2 3 4 5 5 1 2

The HEXDUMP datastream for this example is:

1B	2A	7A	31	30	36	56	1B	26	61	32	37	30	50	1B	2A
7A	34	51	1B	2A	7A	31	30	5A	34	30	31	32	33	34	35
35	31	32													

Print sample:



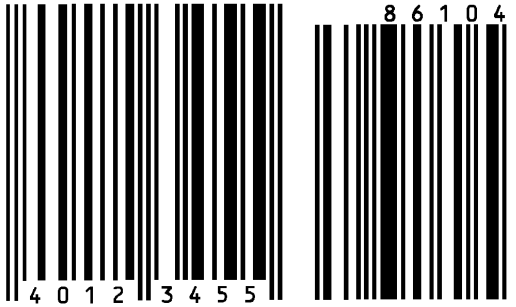
- Example for EAN 8 SC9 add 5

type	= EAN 8 SC9:	ESC * z 1 0 9 V
text	= OCR-B above	ESC * z 1 Q
data	= 4 0 1 2 3 4 5 5 8 6 1 0 4	ESC * z 1 3 Z 4 0 1 2 3 4 5 5 8 6 1 0 4

The HEXDUMP datastream for this example is:

1B	2A	7A	31	30	39	56	1B	2A	7A	31	51	1B	2A	7A	31
33	5A	34	30	31	32	33	34	35	35	38	36	31	30	34	

Print sample:



- Example for EAN 13 SC2

type =EAN 13 SC2: ESC * z 1 2 2 V
orient. = 180˚ ESC & a 1 8 0 P
text = OCR-B below ESC * z 2 Q
data = 4 1 2 3 4 5 6 7 8 9 0 1 8 ESC * z 1 3 Z 4 1 2 3 4 5 6 7 8 9 0 1 8

The HEXDUMP datastream for this example is:

1B	2A	7A	31	32	32	56	1B	26	61	31	38	30	50	1B	2A
7A	32	51	1B	2A	7A	31	33	5A	34	31	32	33	34	35	36
37	38	39	30	31	38										

Print sample:

- Example for Codabar

type = Codabar ESC * z 1 8 0 V
ratio = 3.0 ESC * z 3 . 0 O
text = OCR-B below ESC * z 2 Q
data = a 0 1 2 3 4 5 6 7 8 9 t ESC * z 1 2 Z a 0 1 2 3 4 5 6 7 8 9 t

The HEXDUMP datastream for this example is:

1B	2A	7A	31	38	30	56	1B	2A	7A	33	2E	30	4F	1B	2A
7A	32	51	1B	2A	7A	31	32	5A	61	30	31	32	33	34	35
36	37	38	39	74											

Print sample:

- Example for Code 128

act. font = Ribbon SWC 20 Pt ESC (s 1 p 2 0 v 1 s 0 b 4 1 1 6 T
type = Code 128: ESC * z 2 1 0 V
orient. = 90˚ ESC & a 9 0 P
text = actual font below ESC * z 4 Q
data = C o d e 1 2 8 ESC * z < C o d e 1 2 8 > Z

The HEXDUMP datastream for this example is:

1B	28	73	31	70	32	30	76	31	73	30	62	34	31	31	36
54	1B	2A	7A	32	31	30	56	1B	26	61	39	30	50	1B	2A
7A	34	51	1B	2A	7A	3C	43	6F	64	65	31	32	38	3E	5A

Print sample:

Appendix A Programming Guide

4 List of Supported PCL5 Control Functions

FUNCTION	COMMAND
Universal Exit / Start of PJL	ESC % - 12345 X
Reset	ESC E
Number of Copies	ESC & l # X
Left Offset Registration	ESC & l # U
Top Offset Registration	ESC & l # Z
Unit of Measure	ESC & u # D
Page (Job) Size	ESC & l # A
Orientation	ESC & l # O
Paper Source	ESC & l # H
Paper Output	ESC & l # G
Print Direction	ESC & a # P
Left Margin	ESC & a # L
Right Margin	ESC & a # M
Clear Horizontal Margins	ESC 9
Top Margin	ESC & l # E
Text Length	ESC & l # F
Perforation Skip	ESC & l # L
Horizontal Motion Index	ESC & k # H
Vertical Motion Index	ESC & l # C
Line Spacing	ESC & l # D

FUNCTION	COMMAND	
Horizontal Position in Columns	ESC & a # C	
Horizontal Position in PCL Units	ESC * p # X	
Horizontal Position in Decipoints	ESC & a # H	
Vertical Position in Rows	ESC & a # R	
Vertical Position in PCL Units	ESC * p # Y	
Vertical Position in Decipoints	ESC & a # V	
Half Line Feed	ESC =	
Line Termination	ESC & k # G	
Push / Pop Cursor Position	ESC & f # S	
Carriage Return	CR	(hex 0D)
Space	SP	(hex 20)
Backspace	BS	(hex 08)
Horizontal Tab	HT	(hex 09)
Line Feed	LF	(hex 0A)
Form Feed	FF	(hex 0C)
Symbol Set , primary	ESC (ID	***)**
Spacing, primary	ESC (s # P	
Pitch, primary	ESC (s # H	
Height, primary	ESC (s # V	
Style, primary	ESC (s # S	

FUNCTION	COMMAND
Stroke Weight, primary	ESC (s # B
Typeface, primary	ESC (s # T
Font Selection by ID #, primary	ESC (s # X
Select Default Font as primary	ESC (3 @
Enable Underline	ESC & d # D
Disable Underline	ESC & d @
Transparent Print Data	ESC & p # X [data]
Assign Font ID #	ESC * c # D
Font Control	ESC * c # F
User Defined Symbol Set ID Code	ESC * c # R
User Defined Symbol Set Data	ESC (f # W [data]
User Defined Symbol Set Control	ESC * c # S
Soft Font Descriptor	ESC) s # W [data]
Soft Font Character Code	ESC * c # E
Soft Font Download Character	ESC (s # W [data]
Macro ID	ESC & f # Y
Macro Control	ESC & f # X
Source Transparency Mode	ESC * v # N
Pattern Transparency Mode	ESC * v # O
Area Fill ID	ESC * c # G

FUNCTION	COMMAND
Select Current Pattern	ESC * v # T
Define User Defined Pattern	ESC * c # W [data]
Set Pattern Reference Point	ESC * p # R
User Defined Pattern Control	ESC * c # Q
Raster Graphic Resolution	ESC * t # R
Raster Graphic Presentation	ESC * r # F
Raster Graphic Height	ESC * r # T
Raster Graphic Width	ESC * r # S
Start Raster Graphics	ESC * r # A
Raster Graphic Y Offset	ESC * b # Y
Raster Graphic Compression Mode	ESC * b # M
Transfer Raster Graphic Data	ESC * b # W [data]
End of Raster Graphic	ESC * B or ESC * C
Horizontal Reactance Size, PCL	ESC * c # A
Horizontal Reactance Size,	ESC * c # H
Vertical Reactance Size, PCL Units	ESC * c # B
Vertical Reactance Size, Decipoints	ESC * c # V
Pattern ID for Area Fill	ESC * c # G
Fill Rectangle Area	ESC * c # P

FUNCTION	COMMAND
Display Functions Mode On	ESC Y
Display Functions Mode Off	ESC Z
End-Of- Line Wrap	ESC & s # C
HPGL Horizontal Picture Frame Size	ESC * c # X
HPGL Vertical Picture Frame Size	ESC * c # Y
HPGL Picture Frame Anchor Point	ESC * c 0 T
HPGL Horizontal Plot Size	ESC * c # K
HPGL Vertical Plot Size	ESC * c # L
Enter HPGL Mode	ESC % # B
Return from HPGL to PCL Mode	ESC % # A

***)** For ID code of Symbol Set selection see page 3-13 and printout of PCL TYPEFACE LIST.

Note: All commands for primary with "(" parenthesis can be used for secondary with ")" parenthesis.

5 List of Supported PJL Control Functions

FUNCTION	COMMAND
Universal Exit / Start of PJL	ESC % - 12345 X
Enter Printer Personality (Emulation)	@PJL ENTER LANGUAGE = *pers.*
Reset to Factory Default Values	@PJL INITIALIZE
Reset to Default Values (Panel)	@PJL RESET
Modify the Default Values (Panel)	@PJL DEFAULT *variable* = *value*
Set the Variables for one Job	@PJL SET *variable* = *value*
Display Operator Message (Offline)	@PJL OPMSG = "message"
Display Ready Message (Online)	@PJL RDYMSG = "message"